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ABSTRACT

This manual is a programmed developmental sequence to be used in providing inservice and preservice training for professional educators--teachers, supervisors, and administrators--in the techniques of interaction analysis. It is designed to implement a 30-40 hour program, which would ideally be enacted in three sessions over a span of several weeks. It is designed for use in a flexible workshop setting with a maximum of 30 participants per instructor. The developmental activities suggested present an increasingly intense involvement with the three phases of interaction analysis instruction: tallying, analysis and interpretation, and usage. The manual has been organized to cover in detail all aspects of the organization and administration of an interaction analysis workshop. It provides the trainer with complete descriptions of each activity, including rationale, objectives, procedures, and materials; student materials for reproduction; and transparency copy for reproduction. Specific material lists appear with each activity description. A general list, including sources of the material and audiovisual equipment necessary to complete the program, is also included. (Author/RT)

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TRAINER'S MANUAL:

INTERACTION ANALYSIS

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J.H.H.
R.A.A.

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INTRODUCTION

This manual is a programed developmental sequence to be used in providing inservice and preservice training for professional educators (teachers, supervisors and administrators) in the techniques of Interaction Analysis. It is designed to implement a 30 to 40 hour program of instruction. Ideally, the program would be enacted in three sessions over a span of several weeks. It is designed for use in a flexible workshop setting with a maximum of 30 participants per instructor.

Successful completion of this program of events should give the participant an attitude of concern for continuous data-based decision making in his professional role. He should be able to:

1. Interpret instructional goals in terms of expected patterns of interaction
2. Gather data about the interaction patterns present in a classroom situation
3. Analyze interaction data to ascertain patterns of influence and areas of concern
4. Perceive the effect of different styles of verbal behavior on a classroom setting
5. Vary or limit his verbal behavior to meet desired instructional goals
6. Use analyzed interaction data as a basis for change in his own or other's teaching behavior
7. See the need for several means of gathering data in addition to those presented

This program operates under the assumption that two steps are involved in effectively changing teacher behavior. First, teachers need to be provided the means to determine if they are doing what they think they are doing. Second, teachers need to be provided the means to determine if they are doing what they should be doing. Interaction

Introduction

Analysis, presented according to the suggested program, has little or nothing to say about the latter. It has much to offer, however, in regard to the former. It is further assumed that interested personnel will combine work in Interaction Analysis with other activities which focus on determining if teachers in the classroom are doing what they should.

The developmental activities suggested present an increasingly intense involvement with the three phases of interaction analysis instruction: tallying, analysis and interpretation, and useage. The effect of the spiral arrangement is a planned redundancy which eventually interlocks the skills and concepts involved. Since it is a pragmatic inconsistency to lecture about interaction, the activities demand interaction--occasionally structured, occasionally staged, but always flexible. Skill training is provided in small segments, programed to introduce manageable data and concepts for analysis. Assuming an instructor uses the materials provided in the suggested manner, a minimum of instructional expertise is needed for effective learning on the part of the participants.

Manual Organization

This manual has been organized to cover in detail all aspects of the organization and administration of an interaction analysis workshop. It provides the trainer with:

1. Complete descriptions of each activity:
   rationale, objectives, procedures and materials

2. Student materials for reproduction

3. Transparency copy for reproduction

Manual Organization

Color coding has been included to aid the trainer. Those pages involving only trainer information are green. Students' handouts and transparency copy appear on white paper. A Participant package has been compiled and should be distributed to them intact at the beginning of the workshop.

Specific material lists appear with each Activity description. A general list, including sources, of the material and audiovisual equipment necessary to complete this sequence in Interaction Analysis may be found on page 7.

The program timetable, step-by-step sequence of activities, transparency copy, handouts and comments for each activity are included so each instructor might be able to more adequately plan for workshop activities in his particular setting. Instructors must resist the temptation to use this background information for lecture material. It is provided so they may be prepared and better able to direct discussion sessions. The material should be used only when appropriate.

Instructors who have used this format for a workshop often find it helpful to review in detail the rationale, objectives, procedures and, especially, the comments prior to each activity.

Workshop Setting

This booklet is designed to be quite specific in outlining the sequence of activities developed by the Interaction Analysis Trainers during 1966-68. It is impossible to plan for the variety of settings, different instructors and different participants. However, there are some general considerations which have proven helpful in conducting the 30 initial workshops.

Climate

Probably the most crucial variable in any teaching situation is the general "climate" that prevails. Every attempt should be made, from the initial presentation to the final activity, to make the participants' experience both enjoyable and profitable.

Ideally, inservice workshops for teachers would be conducted during the regular teaching hours. Practical considerations, however, such as the cost of substitutes, often dictate the use of evenings and weekends. The Suggested Timetable, page 8, assumes most workshops will follow a Friday/Saturday format. To improve the climate, every effort should be made to secure released time for teachers on the first day.

Another key consideration which seems to improve the climate is a nonthreatening approach where the trainer indicates only that the participants will be exposed to and instructed in the use of a system of analysis. At the conclusion it should be reviewed to see if the system has any relevance for them. There is no assumption that this is the one and only (or best) system of analysis but simply that it is one approach which may be useful.

The instructor should plan a high degree of participant involvement and, consequently, gradually reduce his percentage of direction. Rather than providing the "textbook" answers to questions, a conscious attempt should be made by the instructor to have each participant internalize the process. They should make individually consistent decisions about discrepancies.

To facilitate maximum involvement most of the activities are structured around small groups of six people. These groups should be changed periodically so everyone has interaction with other participants. The groups should be arranged in such a manner so members have face-to-face contact. Early group membership should be based on school or district origin. Groups in the third session should be changed less than in the other two sessions.

Physical Setting

Ideally, a nonschool location should be found for the workshop. If a school setting is used, a multipurpose room or library would be preferable. The room must be large enough to provide for several small groups to work together simultaneously without noise disturbance. Tables and chairs are a must. Since instructional films (optional), filmstrips and audiotapes have an integral part of most workshop activities, variable lighting and excellent acoustics would be a valuable asset. In addition, facilities for rest and relaxation (coffee, lunch, restrooms, etc.) should be easily accessible. It is almost imperative that coffee breaks be taken in or near the room.

Instructional Materials

The activities suggested in this manual will operate smoothly only if the materials needed for the various activities are readily accessible and operable. It is imperative that each instructor plan not only the participants' time but also his own--there are many instances when group activities are taking place that the instructor must be rewinding, rethreading, cleaning transparencies, organizing handouts, etc.

Format

The activities are listed in a suggested sequence. Flexibility in the amount of time allotted to each recognizes the variety of formats that might be used in conducting a workshop. A Sample Format, page 9, assumes the majority of workshops will make use of Fridays and Saturdays. Special attention needs to be given to the minimum time for each activity in planning a session.

In order to achieve the objectives of the first session and to improve the general "climate" (as previously described) it is highly desirable to obtain released time for teachers on the first day (Friday).

If workshops are to be conducted on Friday and Saturday for three different sessions, the amount of time on each activity will need to be adjusted depending on how much is available each Friday.

The first session needs to be carefully planned as the objectives dictate going through the entire process in the first two days. The participants need to have the expertise to make independent observations between sessions.

MATERIALS LIST

	Source	Cost
Trainer's Manual: Interaction Analysis	Copy-Print Centers 1206 S.W Jefferson Street Portland, Oregon 97201	$4.00
Participant Materials: Interaction Analysis	Copy-Print Centers	$2.50
Thirty-Nine Transparencies	Copy-Print Centers OR Local Reproduction	$12.90
Seven Episode Training Tape	Copy-Print Centers	$8.20
Training Film: Interpretation of an Interaction Analysis Matrix	Northwest Regional Educational Laboratory	$225.00 OPTIONAL USE IN ACTIVITY 6B
Filmstrip with Audiotape: Studying Teacher Influence, Parts 3 and 4	University of Minnesota Audio-Visual Center Minneapolis, Minnesota 55455	$20.00 (Allow 3 weeks)
*Book: Interaction Analysis: Theory, Research and Application, Edited by Amidon and Hough, 1967.	Addison-Wesley Reading, Massachusetts 01867	$4.95 (Paper)
Audiotape Recorder	Local	
Overhead Projector	Local	
35mm Filmstrip Projector	Local	
16mm Film Projector (OPTIONAL USE IN ACTIVITY 6B)	Local	

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*Also available on ERIC, ED 029 849

SUGGESTED TIMETABLE

Activity 1: Characteristics of a Good Teacher		30 - 45 minutes
Activity 2: Two Styles of Teaching		30 - 45 minutes
Activity 3: Introduction of Interaction Analysis		60 - 75 minutes
Activity 4: Categories Quiz		30 minutes
Activity 5: Tallying		180-360 minutes
a) Timing and Procedure	30 minutes	
b) Internal Consistency	120-210 minutes	
c) External Reliability	30-120 minutes	
Activity 6: Analysis		210 minutes
a) Transcription	60 minutes	
b) Matrix Geography	90 minutes(OPTIONAL)	
c) Matrix Analysis	60 minutes	
Interim Activities		
Activity 7: Show and Tell		30 minutes
Activity 8: Tallying		60 minutes
Activity 9: Analysis		90 minutes
Activity 10: Matrix Interpretation		180-360 minutes
a) Description	60-120 minutes	
b) Prescription	60-120 minutes	
c) Variation	60-120 minutes	
Activity 11: Tallying into the Matrix		90 minutes
Activity 12: Use and Misuse		90 minutes
Interim Activities		
Activity 13: Show and Tell		30 minutes
Activity 14: Tallying		60 minutes
Activity 15: Matrix Review		60 - 90 minutes
Activity 16: Fun and Games		180-360 minutes
a) Categorical Teaching		
b) Conference Role Playing		
c) Effect of Categories		
Activity 17: Tallying into Matrix		90 minutes
Activity 18: Summary		90 minutes

SAMPLE FORMAT

2 Days 1½ days 1½ days

First Weekend	Friday a.m.	Minutes	Saturday a.m.	Minutes
	Activity 1: Characteristics of a Good Teacher	45	Activity 5: Tallying	150
			(Tally into Matrix)	60
	Activity 2: Two Styles of Teaching	45	Activity 6: Transcription	60
	Activity 3: Introduction of Interaction Analysis	75		
	Friday p.m.	Minutes	Saturday p.m.	Minutes
	Activity 4: Categories Quiz	30	Activity 6: Analysis Transcription Matrix Geography Matrix Analysis	210
	Activity 5: Tallying Timing and Procedure Internal Consistency External Reliability	180	Interim Activities	10
Second Weekend	Friday (3 hours)	Minutes	Saturday	Minutes
	Activity 7: Show and Tell	30	Activity 10: Matrix Interpretation	180
	Activity 8: Tallying	60	Activity 11: Tallying into the Matrix	90
	Activity 9: Analysis	90	Activity 12: Use and Misuse	90
			Interim Activities	10
Third Weekend	Friday (3 hours)	Minutes	Saturday	Minutes
	Activity 13: Show and Tell	30	Activity 16: Fun and Games b) Conference Role Playing	90
	Activity 14: Tallying	60	c) Effect of Categories	60
	Activity 15: Matrix Review	60	Activity 17: Tallying into Matrix	90
	Activity 16: Fun and Games a) Categorical Teaching	30	Activity 18: Summary	90

CHARACTERISTICS OF A GOOD TEACHER

Description

As the opening activity, the participants will rank in order the list of Characteristics of A Good Teacher. Use the following materials and equipment.

Trainer Materials	TRANSPARENCY: Characteristics of a Good Teacher, page 13 (Use briefly in the introduction) Overhead Projector
Participant Materials	HANDOUT: Characteristics of A Good Teacher, page 13 Name tags

Rationale

This opener or ice-breaker is a consensus task device borrowed from sensitivity trainers. It is used in Activity 1 to get the participants talking about teaching from a different perspective than usual. The phrases included and their order was determined after a two-year field trial. They are intentionally ambiguous and symbolic; thus they are more likely to stimulate divergent reactions from participants.

Objectives

1. Participants will talk to each other about teaching.
2. Participants will become acquainted with a small group of others.
3. Participants will acquire a "set" of involvement rather than passivity in a pleasant, nonthreatening atmosphere.

Comments

1. If at all possible, do not form groups made up of representatives from one school, one district, one grade or professional level.

Comments

2. Instruct groups to discuss definitions and seek common ones for each characteristic prior to rank ordering any of them.
3. Let everyone operate at his own pace, the importance of this activity is the interaction, not the forced consensus.
4. Notice that no provision has been made for introductions, an overview, orientation, etc. This is intentional. They will come later. It might be appropriate to start, however, by introducing yourself. Continue, saying, "Most people come to workshops to listen, not to work. Today, it will be different; I have an activity for you to do."

PROCEDURES

1. Have participants detach Characteristics of A Good Teacher from their packet of materials.
2. Instruct them to work alone until finished. Ranking should take about 10 to 15 minutes. Ask the participants to:
    a. Redefine each phrase in their own words so someone looking at the redefinition would know what each means to the participant
    b. Rank order the phrases using a 1 to indicate the most important, a 2 as the second in importance, and so on until they have ranked all twelve
3. Upon completion of the above, give the participants the following instructions.
    a. Find two to four individuals whom they do not know or with whom they are the least acquainted
    b. Then, as a group, repeat the definition and ranking exercise

(The intent is for each group to reach a consensus of definition and ranking. This activity should take 20 to 30 minutes.)

4. At the completion of the group ranking, instruct the participants to turn their papers over and write the names of everyone in their group. (This step is unnecessary if all the group members know each other.)

CHARACTERISTICS OF A GOOD TEACHER

Being a good teacher demands an interest in:

A. Cutting holes to see through

B. Shaking hands with the future

C. Looking twice and listening for smells

D. Listening to a cat

E. Crossing out mistakes

F. Getting in and out of deep water

G. Having a ball

H. Wanting to know

I. Building sand castles

J. Singing in your own key

K. Plugging in the sun

L. Digging deeper

TWO STYLES OF TEACHING

Description

Different approaches to teaching the same lesson will be presented to two small groups of participants. The remainder of the group will act as observers.

Trainer Materials	Blank Transparency; Overhead Projector, Visual Aid Pen
Participant Materials	None

Rationale

Teachers, in general, have difficulty categorizing the various aspects of the teaching act. Since such an orientation is crucial to involvement in interaction analysis activities, a role-playing demonstration is needed to identify different styles of teaching and the participant's ability or inability to describe them. A presentation of two different methods of teaching the same lesson is used to do this.

Following a small group discussion of the differences in these two presentations, a search could be conducted for descriptive terms such as "lecture," "indirect," "direct," etc., that might be used to describe the teacher behavior.

This discussion could serve as an introduction to a means of describing teacher verbal behavior which follows as the next activity.

Objectives

1. Participants will observe a demonstration of two different methods of teaching.
2. Participants will attempt to describe or categorize the two methods individually and in small groups.

Objectives

3. Participants will identify a need for more explanatory terms to describe teaching behavior.

Comments

1. Try not to make Lesson 1 appear "good" and Lesson 2 "bad." Instead, emphasize and exaggerate the difference in style.
2. Procedure No. 10 is vital, without representation of both volunteer groups, feelings and reactions can only be vicarious.
3. No particular conclusions are demanded, each group should be allowed to react as they see fit.
4. Some demonstrations will not be as dichotomous and, therefore, ensuing discussions not as fruitful. Practice with this procedure will improve the ability to present readily distinguishable styles.
5. Readiness of the group for Activity 3 will determine the extent and necessity of any large group closure as suggested in the second paragraph of the rationale.

PROCEDURES

1. Identify two groups of volunteers. Each group should be approximately one-sixth the size of the total group. Ask both groups to leave the room.
2. Inform the remaining participants they are to observe your teaching style with each group. SAY NOTHING ELSE.
3. Tell the two groups they are to be students in a class which you will conduct for demonstration purposes.
4. Bring in the first group and arrange them so they are facing the other participants and you are close to an overhead or a blackboard.
5. Begin the first lesson by saying, "During the previous activity I heard many of you talking about an aspect of classroom communication--teacher talk. In what ways do teachers talk to students? For example, teachers ask questions--what else do they do?"
6. Whatever they say, repeat it and write it on the overhead.
    a. Occasionally, praise the idea, clarify it with questions, encourage participation, paraphrase, etc.
    b. Do not make judgments about the idea nor criticize the group
    c. Do not introduce your own ideas
    d. Make no effort to duplicate the interaction analysis categories
    e. Continue until you have six to ten points listed and clarified--this takes approximately five to seven minutes
7. Bring in the second group and arrange them the same way.
8. Begin the second lesson by saying, "Now we want to focus on communication in this workshop. One aspect of classroom communication is teacher talk. I have listed on the overhead several different ways teachers talk. Teachers talk by..." (Read the list)

Procedures

9. During the second demonstration:

    a. Ask long, involved questions that demand extremely short answers

    b. Limit student participation

    c. Lecture, give directions and criticize; also justify your ideas and actions

    d. Do not praise, encourage or classify their ideas. Give your own instead

    e. End the "lesson" abruptly after approximately six minutes

10. Divide the participants into groups of six, making sure that each group has someone who was a student in each "volunteer" class.

11. Instruct each group to:

    a. Describe what they saw

    b. Enumerate differences between styles

    c. Evaluate experience

The discussion should take twenty to twenty-five minutes.

INTRODUCTION TO INTERACTION ANALYSIS

Description

The participants will view a filmstrip which presents the category system to be used in the future. They will be given examples of verbal behavior which are typical of each category. A list of the categories also is provided for reinforcement.

Trainer Materials	FILMSTRIP: Studying Teacher Influence, Part 3. TAPE: Soundtrack, Episode 1 TRANSPARENCY: Categories for Interaction Analysis, page 22 Filmstrip Projector and Tape Recorder Overhead Projector With Pen
Participant Materials	HANDOUT: Categories for Interaction Analysis, page 22

Rationale

We now become directly task oriented. The participants will be introduced to a ten-category system: what it is, and what it does. This is probably the most crucial activity in the program. All subsequent work is based on the concepts considered. Because of its crucial nature a filmstrip with an accompanying sound track should be used in this activity.

The assumption is made that no information was previously known so misconceptions will be minimized.

The basic purpose of this initial introduction is the memorization of names and numbers of the categories and a basic understanding of examples that fit each category. The instructor should avoid subtle distinctions and reinforce the major differences. Explain that future activities are designed to examine and discriminate between the more subtle distinctions.

Objectives

1. Participants will know the names and numbers of the ten categories used to describe classroom verbal behavior.
2. Participants will be able to cite basic examples of types of talk that fall into each of the ten categories.
3. Participants will be able to separate teacher talk into broad areas, indirect influence (categories 1-4) and direct influence (categories 5-7).

Comments

1. As interaction analysis is introduced the trainer should express, or at least imply, the attitude that this system is one which should be examined to see if it is helpful in describing verbal behavior in the classroom.
2. The instructor should be wary of becoming a salesman for this particular system.
3. FILMSTRIP, Part 3: This filmstrip and the accompanying sound tract were made initially as one of a five-part sequence designed to be used as a self-instructional package. This particular segment simply discusses the ten interaction analysis categories as they were originally conceived. In addition to the narrative, classroom examples are used to illustrate each category, in some cases, in two or three different ways.

   A short lecture or inductive session has been used to accomplish the same input but the filmstrip has been found superior because it forces the participants to conceptualize each category as a specific classroom phenomena rather than one of a series of cold, unrelated rules.

Comments

4. HANDOUT: Categories for Interaction Analysis. This chart is used in Activities 3 and 4 to introduce the categories. It is a slight revision of the chart which appears in Interaction Analysis, Amidon and Hough, Chapter I, Section II, page 125.

    a. Do not allow participants to rely on this chart during Activity 5

    b. Time must be provided between Activities 3 and 4 for participants to learn (memorize) the categories by number and definition

PROCEDURES

1. The instructor should spend 5 to 15 minutes talking about how he became involved with interaction analysis, how it has been useful in his day-to-day professional life, etc.
2. Show the FILMSTRIP: Studying Teacher Influence, Part 3, with the accompanying sound track.
3. Refer participants to Categories for Interaction Analysis.
4. Divide the participants into the small groups used in Activity 2 and instruct them to:
    a. Discuss the ten categories
    b. Identify unanswered questions
    c. Cite further examples of types of talk within each category
5. A short question-answer session dealing with four or five unanswered questions should be conducted. It is best to avoid closure and "teacher's answers" at this time.
6. Instruct the group to commit to memory the names, numbers and concepts contained on the Categories for Interaction Analysis.
7. Inform them a test over this information will be given at the beginning of Activity 4.
8. Break for the day or for lunch at this time.

CATEGORIES FOR INTERACTION ANALYSIS[1]

TEACHER TALK	INDIRECT INFLUENCE	1.* ACCEPTS FEELING: Accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.
		2.* PRAISES OR ENCOURAGES: Praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included.
		3.* ACCEPTS OR USES IDEAS OF STUDENTS: Clarifying, building or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to category five.
		4.* ASKS QUESTIONS: Asking a question about content or procedure with the intent that a student answer.
	DIRECT INFLUENCE	5.* LECTURING: Giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions.
		6.* GIVING DIRECTIONS: Directions, commands or orders to which a student is expected to comply.
		7.* CRITICIZING OR JUSTIFYING AUTHORITY: Statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.
STUDENT TALK		8.* STUDENT TALK--LIMITED: Talk by students within the limits set by the teacher. Teacher initiates the idea or solicits specific student response.
		9.* STUDENT TALK--DIVERGENT: Talk by student in response to broad questions or comments which they initiate.
		10.* SILENCE OR CONFUSION: Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

*There is NO scale implied by these numbers. Each number is a classification; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale.

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[1] Adapted from Amidon, Edmund J. and John B. Hough. *Interaction Analysis: Theory, Research and Application*. Reading Massachusetts: Addison Wesley, 1967, page 125.

CATEGORY QUIZ

Description

The participants will each take the Category Quiz.

Trainer Materials	TRANSPARENCY: Category Quiz (Optional)
Participant Materials	HANDOUT: Category Quiz, page 26

Rationale

This quiz is designed to measure factual recall of the information contained in the previous chart. It is used in Activity 4 to bring together or sum up the first three activities as preparation for the participants' initial experience with tallying. Self-correction by the participants usually serves as an excellent basis for questions.

Objectives

1. Provide each participant with immediate feedback of his knowledge (memorization) of the names and numbers of the categories included in the two broader areas: indirect and direct influence.
2. Provide practice in identification of names and numbers of the ten categories for those participants who did not have all the categories memorized.

Comments

1. This process of self-evaluation reinforces the participants' previous knowledge and immediately corrects misunderstandings.
2. Do not worry about the underachievers and slow learners. Subsequent activities will identify and correct lingering misconceptions.
3. Again, do not overfeed by extending the brief discussion period. Questions now answer themselves quickly in the next stage. Questions, also, become more relevant and meaningful as experience is provided.

Comments

4. The Category Quiz is designed to measure knowledge of category names, numbers and category groupings. It is useful as "incentive" to memorize information on the category sheet and as a source for identifying differences of opinions. It is not intended as a means for evaluation or grading simply direct feedback for workshop use.

PROCEDURES

1. Have participants complete the Category Quiz.
2. Upon completion of the quiz have each participant grade his own paper and compare it with the person next to him using Categories for Interaction Analysis as the criteria measure.
3. Have another brief (three to five minute) discussion of questions regarding the quiz or categories.

Activity 4

Name ________________________ Score ________________

Date ________________________

CATEGORY QUIZ

1. How many categories are included in interaction analysis? ________

2. Each category is designated by a specific number.

   The last category on the list is called ____________________

3. Teacher Talk includes several categories. Identify by number those called "Indirect Influence" and those called "Direct Influence."

Indirect	Direct

4. List in order the categories which are grouped under the heading "Student Talk." Label them with the appropriate number.

Category Name	Category Number

5. List in order those categories for interaction analysis which are grouped under the broad heading "Teacher Talk." Label them with the appropriate number.

Category Name	Category Number

TALLYING

Overview

This activity is the primary focus of the first session. It is designed as a developmental learning sequence wherein pressures for accurate discrimination between categories are slowly but gradually increased as procedural questions are reduced and eliminated.

The sliding scale of time allotted to this activity in the timetable is indicated only to provide for those workshops that must operate at the minimum levels. As much time as can be provided for this activity in this session should be.

The procedures suggested are staged so that the instructor will be able to introduce experiences which will help the participants identify and discriminate among the ten categories of interaction analysis at a maximum of three-second intervals. The length and difficulty of the observation will increase over time.

Activity 5a

TIMING AND PROCEDURE

Description

The participants will be introduced to the procedure for tallying, listen to a tape and be given practice in using the system.

Trainer Materials	TRANSPARENCY: Tally Sheet, page 36 TAPE: U-2 Incident Overhead Projector and Pen Tape Recorder
Participant Materials	HANDOUT: Tally Sheet, page 36 Multiple Copies in Appendix A, page 203 HANDOUT: U-2 Incident Typescript, pages pages 37-43 HANDOUT: U-2 Incident Matrices, pages 44-46

Rationale

Before participants can effectively use the system, some time must be spent with the standard procedure necessary for recording data.

Objectives

1. Participants will understand procedure and be able to record observations on the Tally Sheet.
2. The participants will record an observation on the Tally Sheet every three seconds (twenty per minute).

Comments

1. As students begin tallying, the instructor should walk quickly around the room to encourage everyone to get started. The tone is low-keyed with an emphasis on trying the system. Experience will eliminate initial mistakes and we need not be concerned immediately with speed or accuracy.

Comments

2. The instructor should be cautious of long, large group discussions as the group needs individual practice rather than minor distinctions between categories. Comments such as "this will become more obvious later," or "the material is designed to make this clear" may be helpful.
3. In these initial trials the instructor should minimize comparisons for purposes of "right or wrong." The emphasis is: "You need practice at making these decisions. As you develop consistency we will become interested in accuracy."
4. The tally sheet is designed to record 400 tallies--the exact length of the suggested observation time. Each column or row is equal to one minute of three-second tallies. Tallying is usually done vertically for ease of recording. It may actually be done either way. Each tally is placed in a separate cell even though two or three tallies might have been determined within a three-second interval. This means that twenty tallies are only an approximation of one minute; extremely close for senior high classes and rather rough for a first grade class due to the number of verbal interchanges and the length of verbal transactions.

   Instructions for this sheet are simple and straightforward. Questions and discrepancies on its use quickly solve themselves as the participants proceed.
5. The U-2 Tape was made in a Minneapolis suburban school in the late spring of 1960. The audio is generally good, the exchanges are seldom rapid, the contributions of both teacher and student are lengthy, and most of the categories (all but "1") are used repeatedly. A precoded typescript is contained in the participant materials.

Comments

Some precautions:

5a. A number of questions continually arise about the following tallies:

TALLY QUESTION

1-3 Why are these not "5's"?

Answer: The teacher is referring to student ideas expressed that morning, a "3" is a "3" regardless of the time factor involved.

16 Is this a student or the teacher?

Answer: The student's voice is difficult to distinguish from the teacher's. This is a student.

38 Is this an "8" or "9"?

Answer: It is an eight because the student has accepted the limits of the teacher. She quickly goes beyond those limits, however, and the "8" becomes a "9."

67 How are student questions tallied?

Answer: Student questions by definition are "9's."

69 How do we tally "Susan"?

Answer: Such use of "Susan" could be a "2," encouraging her to talk, a "4," asking her to talk, or a "6," commanding her to talk. We could argue all day as to what it might be. Since it contributes little to the interaction pattern, it is ignored. Should an observer want to know who was called on, other means of gathering such data would be needed.

82 Why is this a "3"?

Answer: Repetition is three. The teacher is repeating the student's question.

Comments

TALLY QUESTION

112-114 How do you tally non sequitur responses?

Answer: Students' stumbling answers are tallied according to the answers expected from the question, since "9's" are expected, these are tallied such.

128 When does confusion become confusion?

Answer: Class disruptions are categorized as "10" at that point when the class activity is no longer discernible to the observer. This will vary from observer to observer, such individual differences are allowable due to location of observer, acoustics, hearing, etc.

143 Is this a "6" or a "7"?

Answer: When discipline remarks are made, the phrases used are always "4's," "5's," or "6's." The question is, "How did the student hear this, as a '6' or as a '7'?" The obvious answer is as a "6."

201 Why are these "8's"?

Answer: Review, by definition, is an "8."

205-207 Why are these not "3's"?

Answer: Reread the phrases. Notice that he is not accepting the response. He is, in effect, rewording it as he wants it without acceptance or rejection.

237-238 Isn't this a "6"?

Answer: A six is only used when immediate compliance is expected. Giving an assignment is a six, discussion of the assignment is a five.

Comments

	TALLY	QUESTION
5a.	259-261	Is this not a "3"?

Answer: The real question is, "How do you tally the teacher's statement in response to a question?" The answer is, a "3," a "5," or a "7." It is a "3" if he repeats, uses, clarifies, etc.; a "5" if he simply gives a factual response; a "7" if he criticizes the student for asking the question.

b. The typescript can easily become a crutch. Notice that its use by the students is not suggested until late in Activity 5. The instructor should, however, make continual reference to it as participants ask questions about statements contained therein.

c. Use the tallies as an aid in dividing the experience into even minutes.

20 - "an undisputed claim"	Student
40 - "oh, get above us"	Student
60 - "they said, that, that probably"	Student
80 - "thoughts on this? Karen."	Teacher
100 - "snuck into Russia and just"	Student
120 - "that have been mentioned, Sharon"	Teacher
140 - "give it to me, it gets"	Student
160 - "telephoto lens. Well,"	Student

d. Once students are encouraged to use this typescript, it can be quite helpful as information for quick, small group discussions following a 2-3-4 minute tallying session.

Comments

5e. The tallies provided are those of one man--disagreements of perception and point of view may be numerous. The important criteria is that each participant satisfies himself that the tally, as he did it, is correct and that he will always tally an identical sequence accordingly. He is most likely to do the latter if he tallies as per the typescript.

f. The U-2 Typescript is most useful in Activity 5 and as a source for tallying into the matrix in Activities 11 and 17. The other typescripts should be used in Activities 8 and 14 as well as occasionally in 5, 11 and 17. The *Typing Episode* tape is the most similar while the *First Grade Mathematics* tape provides the greatest contrast.

6. The *Seven Episode Training Tape* has been duplicated so all audio episodes needed in the workshop can be located together. CAUTION: Episodes No. 1 and No. 3 can only be used with filmstrips purchased from the University of Minnesota--orders generally take three weeks.

Episode 1: Filmstrip, Part 3 Soundtrack
2: U-2 Incident
3: Filmstrip No. 4 Soundtrack
4: First Grade Mathematics
5: Typing Episode
6: School Mathematics Study Group (SMSG) Mathematics Lesson
7: Flowers Discussion

PROCEDURES

1. Have participants detach several tally sheets from packet.
2. Demonstrate with the transparency the procedure for recording tallies.
3. Give an orientation to the U-2 Incident. (Section 2 of Training Tape.)
    a. Seventh grade class discussing current events
    b. May 1960 discussion of the plane being shot down over Russia
    c. Interaction begins with the use of an idea expressed by students earlier that day (3's)
    d. Most student talk is divergent (9's)
4. Instruct participants to:
    a. Make a tally every three seconds
    b. Be prepared to tally for one minute
    c. Start and end each observation with a "10"

(The orientation should be done with heavy use of 2's [encouragement] in an effort to reduce anxiety)

5. Start the tape and run it for one minute. (Until "Little Border Incident")
6. Respond to questions of procedure or timing. (2-5 minutes)

    Make people aware of their speed.

    Discuss when to make a decision.

    a. At every interchange but at least once every three seconds
    b. At precise instant of three seconds
    c. According to what happened during most of the interval

    Although all three are used in most cases, the first should be encouraged.
7. Start the tape where it had stopped and run it for another minute.

Procedure

8. Again, respond to questions. As questions become more concerned with discrimination between categories and as participants are able to make approximately 20 tallies per minute, instructors should be wary of long discussions over minor points. The emphasis here is the practice.
9. Repeat Steps 5, 6, 7, and 8, mixing new material on the U-2 Tape, with repetitions of the same material, gradually increasing the length of the observation. When timing is no longer a major concern, emphasis should shift to internal consistency. This is usually after several one, two or three minute observations. (About 30 minutes of tallying)

Activity 5a

TALLY SHEET

Observer: ______________________ Date: ______________________

Summary

Categories

	1	2	3	4	5	6	7	8	9	10	
Totals											

U-2 INCIDENT TYPESCRIPT

This discussion took place in a junior high classroom just after the headlines indicated a U-2 plane had been shot down over Russia.

CATEGORY

3 T: This morning during activity class, many (1) of you wondered
3 if I had seen the (2) headline in the paper this morning.
3,5 This was again (3) about the plane that had been shot down (4)
3 over Russia. Now, Sandra was wondering just how (5) this
3 plane got into Russia in the first place. (6)

9 S: Well, I just can't understand how after (7) all the warfare
and all of the things that we've been learning about, Russia
9,9 is so (8) advanced above us and (9) here this plane got into
9 (10) Russia a couple thousand miles and they didn't see it.
9,9 (11) Of course, it did get shot down, but I (12) just can't
9 understand with all their warfare how it did get in there. (13)
10,10 xxx(14)xxx(15)

9 S: Well, I could say that brightens our hopes for (16) retaliation,
9,9 if they do attack us but (17) I wonder if they didn't (18)
9 purposely let the plane get in there so they (19) could have an
9 undisputed claim (20) that we were spying on them. After all
9,9 (21) the little border incident like some (22) of them have
9 been, I don't know if those (23) were spying missions or not
9,9 but they, (24) ah, someone's always been able to (25) talk their
9 way out of it. So they possibly (26) let the plane get in there
9,9 in order so they could have a (27) foolproof case on us. (28)

3 T: Now, Jerry's mentioned that...that perhaps the Russians (29)
3 allowed this plane to get in there (30) deliberately so that
3 they might have an edge of some type on us (31) in the propa-
3 ganda war that is going on in the world (32) today. Ah, now,
5 this is of particu...particular (33) importance today because
5 of the summit conference (34) that is beginning now. Marcia,
5 you were (35) reading about the summit conference last week.
3,4 Of what importance is (36) this and the plane incident? (37)

8 S: Well, they'll probably discuss it and they'll (38) think
9 something's...well, that Russia is (39) trying to, oh, get
9,9 above us (40) in some way and they're trying to get (41)--
9 they're trying to let the plane get into the (42) country so
9 they could shoot it down. This could start (43) a third world
war.

3 T: All right. Now, (44) are there any other thoughts on this plane
4 incident? Bill. (45)

9 S: Well, there was some discussion on whether it (46)--the plane--
9 had mechanical difficulty or...(47)

Activity 5a

U-2 Incident Typescript

CATEGORY

2 T: Now, this is a good point now, go ahead.... (48)

S: Or whether it was shot down. And the Russians also said
9,9 that (49) they had the plane in about one piece.... (50)

T: Um Hm.

9 S: I don't see (51) how they could have had it in one piece when
9,9 it was, ah, (52) it fell from 65,000 (53) feet in the air.

T: I see.

9,9 S: And (54) they said they were so far advanced in (55) missile
9 warfare and everything like (56) that so how could the plane
9 have gotten so far (57) into Russian territory?

2 T: Um Hm. (58)

9 S: And, ah, they, there (59) is also some things they said that,
9 that probably, ah, (60) they're probably going to shoot the,
9,9 the (61) pilot and well, I don't think that's (62) the right
9 thing to do, they should settle it peaceably (63) and discuss
10,10 it, and.... (64) and.... (65)

9 S: Well, maybe um, that man, (66) I don't remember his name right
now, is it Powell? (67)

4 T: Who can recall the pilot's name now? Marcia? (68)

8 S: I wouldn't know. (69)

T: Susan.

S: Powers.

3 T: Powers, that's (70) right.

9 S: Well, this Mr. Powells, maybe he went (71) in there on purpose
9 instead of working with (72) us. Maybe he was working with the
9,9 Russians (73) and maybe he was an agent (74) of some type who
9 went in there on purpose, and, and brought (75) all this stuff
9 in there and got so far in and, and (76) made everything plain
9 and, so that everyone would be suspicious (77) of the United
9 States and what exactly they were doing. (78)

T: Um Hm. Now, this is a good point. Are there any other thoughts
4,4 (79)* on this? Karen. (80)

---

*Tallies are made between 50-51, 53-54, 69-70 and 78-79 to indicate a change in category even though three seconds have not elapsed.

U-2 Incident Typescript

9 S: Well, do they know who sent the man into Russia? (81)

3 T: Does anyone know now who gave the orders, (82) do you recall
2 this from your newspaper readings? (83)*

8 S: Secretary Herter said that he (84) wasn't going to, Secretary
8 of State Herter (85) said that he wasn't going to reveal who
8 sent him in, but they do (86) know that the United States
9 didn't tell him to go. (87)

4 T: Well, now the big question seems to be should we (88) have
4 sent this pilot in in the first place? Robert. (89)

9 S: Um, I don't think he (90) should have gone through the right
9,9 channels; (91) I'm not sure he got permission from (92) high
9 enough to go in. Ah, he (93) I know this sounds kind of way
9,9 out but (94) he could've gotten permission, (95) he was going
9 on a short flight taking (96) the plane somewhere or another
9,9 for (97) repairs and had the mechanical difficulty in there (98)
9,9 after he had sort of (99) snuck into Russia, and just (100)
by luck had not gotten shot down.

2 T: All right, now this is a good point, (101) Robert has mentioned
3 the mechanical difficulty aspect (102) now. Any other thoughts?
4 Sharon. (103)

9 S: Well, even if the plane did have a mechanical difficulty, (104)
9 if we tried to impress that upon the Russians (105) they wouldn't
9 believe us. They are trying to find something against us. (106)

T: Karen.**

9 S: Do you think (107) the United States would have done the same
9,9 thing if there were a Russian (108) ship or a Russian plane? (109)

T: All right. Now Karen has asked the question, now, what would the
3,3 United (110) States have done in such an instance? Kim. (111)

9 S: Well, I think that maybe they would have, (112) well, that's
the way the Russians did it, I think they probably should have
9,9 (113) because if Russia wants to be, doesn't want, ah (114),
9 American planes flying over it and finding out (115) different
9 things about her country then...(116)

3 T: All right, now we've heard several (117) different opinions on
3 this problem of the Russian plane (118) but just to recall the
3,4 several items (119) that have been mentioned, Sharon, (120)

---

*A very impersonal form of encouragement to respond.

**Calling on Karen (or Susan earlier) is to acknowledge the right to speak.

U-2 Incident Typescript

CATEGORY

4 would you just briefly tell us now what has (121) been mentioned
4 so far so we can get all of the thoughts together. (122)

8 S: Well, we don't know whether it was mechanical difficulty (123)
8 or shot down, the reason the plane (124) came down. And we
8 don't know whether the (125) man was sent by one of our officials
8 to go over there or (126) whether he did it purposely or whether
8,10 it was for some (127) other reason...(128)

S: Hey come on, gimme it!

4 T: Any other thoughts on this, Sandra? (129)

2 S: Well, I don't know if I was up in a plane like that...(130)

10 S: (Whispering by students) No! No!

7 T: All right, boys, (131) that's enough back there now. Let's
7 settle down, (132) Sandra.

9 S: Well, I'd like to know (133) why in the world, I mean he would
9,9 just (134) go in there, I mean it's so, (135) someone would be
9 so scared, because he knew it was (136) fatal death, I mean, he
9 just couldn't go all the way across (137) Russia and not someone
9 see him with all those (138) difficulties and things like
9 that.... (139)

10,10 S: Hey, come on, give it to me, it gets (140) me in such....(141)

7,6 T: All right now, just a minute (142) Jerry, stand up please. (143)
7 Now, listen. (144) It seems to me that you're a much better
7 student than that. (145) I know you are and do you want to
7 stay around this classroom or (146) not?
7

S: Yeah.

7 T: All right. (147) Let's get your behavior back where it should
6 be. Now sit down. (148) It's extremely discourteous to
7,7 interrupt this class (149) in that way. All right, Sandra. (150)

9 S: Well, what kind of things did they have (151) in that plane that
9 they wanted so much? I mean that (152) what did he have in there?
9 Did he have anything that he could shoot back at them (153) or
something?

2 T: Well, now Sandra's brought up a very good point. (154) What
4 type of information do you think this aircraft would be (155)
4 seeking anyway? In such a high altitude of (156) 65,000 feet
4 or thereabouts? Wally. (157)

Activity 5a

U-2 Incident Typescript

CATEGORY

9 S: Well, I think he might have been (158) looking, well, you know
9 they've got these (159) cameras with these telephoto lenses.
9 Well, (160) he could have just been taking pictures on how they
9 operate (161) things and stuff like that.

2 T: All right, now this is a good point. (162) Trying to discover
3,10 Russian operations. (163) Jerry. (164)

9 S: Another reason for sending that plane over (165) might be they
9 wanted to test the (166) effectiveness of the Russian defenses
9,9 to (167) see how much chance they had to get through there. (168)

T: Now, class what do you think of that? Testing the Russian
4,4 defenses with (169) an American's life. Marcia? (170)

9 S: Well, I don't think it was right because I think (171) he knew
9 that there would be trouble if they did see him and (172) it
9 would just cause trouble for the whole United States. (173)

T: Sharon.

9 S: Well, right at this (174) time there are many other countries
9 in the world that have got, (175) that have come to distrust
9 the United States and (176) with that information that the
9 Russians are giving, (177) things that were sending planes over
9 there to spy on them, (178) they could turn the whole world
9 against us. (179)

3 T: All right, now this is, introduces something else (180) too.
5 We have always prided ourselves (181) in the leadership in the
5 world. Now, is this a very (182) good example of leadership?
4 This whole incident, (183) all the facts, now, that we have?
4 What about the leadership (184) of the United States?
4 Wally. (185)

8 S: Well, I don't think something like this shows very (186) good
9 leadership, I mean sending some guys over (187) there and having
9 them check things and see how (188) they're going. A leader,
9 he, he's (189) up there and he's not going to care so much about
9,9,10 (190) how they're coming along or something like...(191) (192)
Silence.

3 T: All right, now, we have (193) heard several points of view on
3 this problem of the (194) American flyer that was shot down.
5 I think that we could summarize these (195) on the board.
6 Marcia, would you please go to the board (196) and as the things
6 are mentioned would you write them down (197) and be our recorder
6,4 in this discussion. (198) Now, again, Robert what were the (199)
4 most important things in this particular incident? (200)

Activity 5a

U-2 Incident Typescript

CATEGORY

8,8 S: Well, one (201) was should have been in there (202) and how
8,8 did he get aro...(203) get around to going that way. (204)

5 T: All right, now let's put this in a briefer (205) question.
5,5 Let's state it this way. (206) Why was he there? (207)
4 Karen? Another (208) reason.

8 S: Well, who sent the...who sent the man? (209)

3 T: All right, who? Would be, I think we could just write (210)
6 down the word "who." And we'll remember what this means. (211)
5 Sharon, the next (212) point.

8 S: Advantages or disadvantages or...(213)

3 T: In other words, why was it done? (214) I think we have that
5,5 included (215) in why was he there and...(216)

9 S: What I meant that what could happen because of this? (217)

3 T: All right, what could happen. That could perhaps be the (218)
6 third point that Marcia could write down. (219) Karen?

9 S: Well, we haven't discussed this yet, but (220) what they plan
9 on doing with the man. (221)

3 T: All right, now this is the one point of the (222) discussion
3 we haven't touched (223) on at all. What is going to be the
3,3 result of this, (224) particular incident? Marcia (225) will
just write down the word "result."

6,10 T: (226)...(227) All right, with these four things on the board
5 we certainly don't have (228) the full picture of this inci-
5 dent as yet. (229) However, it certainly will be developed
5 in the newspapers and in the (230) magazines during the next
5,5 (231) few days. Especially over the weekend now. (232) Over
6 the weekend I would want you to (233) do this. First of all,
6 today we'll (234) just copy down these four little phrases
6 and follow this incident over (235) the weekend, especially in
6 the Sunday paper. There should (236) be a very complete arti-
5,5 cle in the paper (237) on Sunday. (238) And following the,
7 (noise in the background) Now just a minute! Let's keep (239)
7 our pens and papers (240) and books away 'til I finish giving
7,6 the assignment. (241) I want you to follow up (242) the
6 incident, get many of the facts and then (243) first of all
6,6 perhaps a (244) paragraph or two (245) on these four points.
6 (246) And the most important part of the assignment will be
6,6 this: (247) What do you think the world opinion (248) of the
6 United States is going to be (249) after the full facts have

Activity 5a

U-2 Incident Typescript

CATEGORY

6 T: been known? (250) In other words, will our position be a
6,6 little bit stronger (251) as a world leader or will we (252)
6 not be so strong as a result of this one particular (253)
incident? Now are there any questions on this assignment?
4 (254) Karen.

9 S: When will this be due? (255)

6 T: This will be due on Monday. This will give you (256) a full
5 weekend to work on this particular assignment. Wally. (257)

9 S: What happens if you're to be gone over the weekend? (258)

5 T: Now, of course, (259) you're going to be somewhere where you're
5 going to get a Sunday (260) paper. Be sure now that this type
6,6 of assignment, (261) remember, that it is done in ink. (262)
6 Pencil is not acceptable in this. Jerry. (263)

9 S: How do we know these newspaper stories are true? (264) Awhile
9 ago when the instance (265) was first discovered they released
9 a statement saying (266) about oxygen shortage or something
9 like that. (267)

5 T: Well, now, this is one thing that we will, (268) perhaps, have
5 to judge all of these different (269) facts now that they have
5 been revealed. Certainly, the first set (270) of facts the
5 United States officials said (271) one thing and the day after
5 that they reversed (272) themselves so we'll just have to take
5,5 the facts (273) as they develop and try to determine (274) that
5 which is right. And I think now that on (275) Sunday we'll
5 have a full summary article because the Sunday paper (276) is
5 usually very good for this. Sharon. (277)

9 S: Besides doing this could you get some people's (278) opinion
9 to add on, on the end? (279)

3 T: You certainly could do this, perhaps your (280) parents,
3 especially your fathers who have (281) participated in World
3 War II might have (282) some opinions on a very important
5 incident like this. (283)

Activity 5a

U-2 INCIDENT MATRIX
FIRST 100 TALLIES

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				1				1	4		6
3		1	6	2	2				2		13
4				2				2	3		7
5			2		2						4
6											
7											
8			1					3	2		6
9		5	3	2					46	3	59
10			1						2	2	5
TOTAL TALLIES		6	13	7	4			6	59	5	100
INCIDENTS		6	7	5	2			3	13	3	
Percent of Total		6	13	7	4			6	59	5	
	26				4			65		5	
	Teacher Total: 30							Student Total		Silence	

Transparency/Handout

Activity 5a

U-2 INCIDENT MATRIX
FIRST 200 TALLIES

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2			2	2				1	4		9
3		1	10	4	3				3	2	23
4				9				4	7		20
5			2	1	3						6
6							2				2
7						2	4	1	2		9
8			1				1	7	3	1	13
9		8	6	3			1		86	4	108
10			2	1			1		3	3	10
TOTAL TALLIES		9	23	20	6	2	9	13	108	10	200
INCIDENTS		9	13	11	3	2	5	6	22	7	
Percent of Total		4.5	11.5	10	3	1	4.5	6.5	54	5	
	26				8.5			60.5		5	
	Teacher Total: 34.5							Student Total		Silence	

Activity 5a

U-2 INCIDENT MATRIX
ENTIRE EPISODE

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2			2	2				1	4		9
3		1	14	4	6	3			3	1	32
4				10				6	8		24
5			2	2	22	3	1	1	3	1	35
6				2	3	18	2		2	1	28
7						3	6	1	2		12
8			3		1		1	10	3	1	19
9		8	9	3	2	1	1		91	4	119
10			2	1	1		1		3	3	11
TOTAL TALLIES		9	32	24	35	28	12	19	119	11	289*
INCIDENTS		9	18	14	13	10	6	9	28	8	
Percent of Total		3.1	11.1	8.3	12.1	9.7	4.1	6.6	41.2	3.8	
	22.5				25.9			47.8		3.8	
	Teacher Total: 48.4							**Student Total**		**Silence**	

*Differences in tally totals can result when the incident is coded by other individuals. The important element is to be consistent in your own judgment.

Transparency/Handout

Activity 5b

INTERNAL CONSISTENCY

Description

This is a continuation of the previous activity with the addition of an external criteria for comparison of responses.

Trainer Materials	TAPE: U-2 Incident, Episode 2 TAPE: First Grade Mathematics, Episode 4 (Optional) Tape Recorder
Participant Materials	HANDOUT: Tally Sheets (Several Per Participant) HANDOUT: U-2 Incident Typescript, Pages 37-46 HANDOUT: Record Sheet: U-2 Incident, page 53 (Optional) HANDOUT: First Grade Mathematics Typescript, pages 54-64 (Optional) HANDOUT: First Grade Mathematics Matrix, Page 65 (Optional)

Rationale

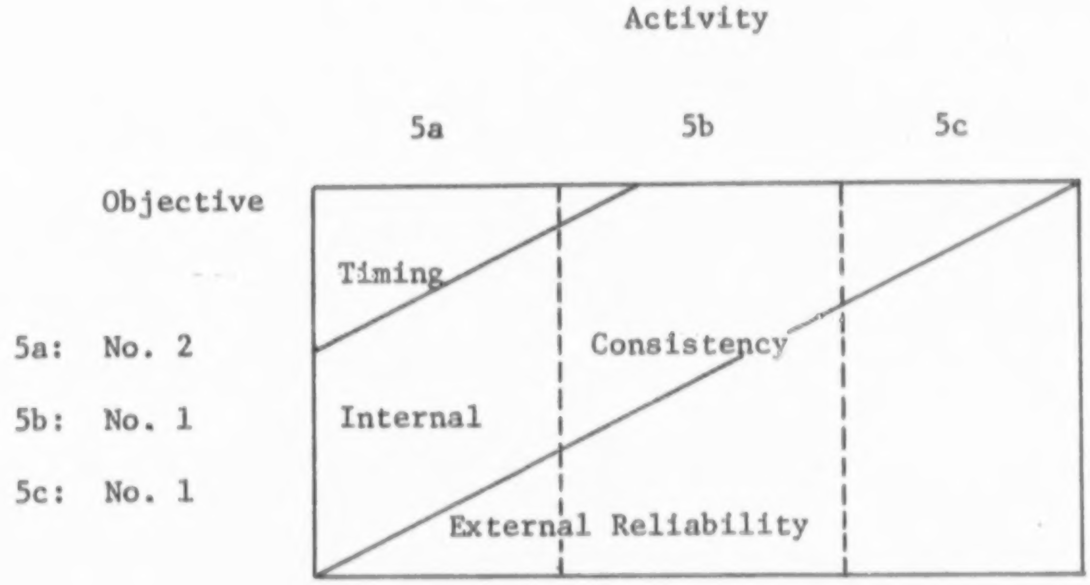
This activity is designed to bring the participant to a point where he records the same tallies in repeated observations of the same materials. As this ability is developed, external reliability will come increasingly into play. Comparisons between participants, with the instructor and, eventually with the typescript will be helpful in achieving these ends.

The participants probably will not notice a shift from 5a to 5b and, subsequently, to 5c. Timing, internal consistency and external reliability develop almost simultaneously. The suggestions made are an attempt to differentiate between objectives and to give each a place in the instructional program.

Activity 5b

Objectives

1. Participants will develop internal consistency as the same material is repeated.
2. Participants will begin to work from a set of ground rules which will assist them with difficult distinctions and subtle discriminations.


Activity
5a
5b
5c
Objective
5a: No. 2
5b: No. 1
5c: No. 1
Timing
Internal
Consistency
External Reliability

Comments

1. The tallies provided on the typescript are those of one man. Disagreements of perception and point of view may be numerous. The important criteria is that each participant satisfies himself that the tally as he did it is correct and that he will always tally a sequence accordingly. He is most likely to do the latter if he tallies as per the typescript.
2. The instructor should be cautious of long, large group discussions as the group needs individual practice rather than minor distinctions between categories. Comments such as "this will become more obvious later," or "the material is designed to make this clear" may be helpful.

Comments

3. Throughout the workshop, and especially after the initial exposure to the system, the instructor should make every effort to withdraw from an authoritarian role in answering questions. The questions should be directed back to the individual asking the question or to others in the workshop. Comments such as "what do you think," or "what are the possible responses" may be used.
4. Resist the temptation to "tally out loud," "tally on the overhead," "read the typescript," etc. These experiences have been found to have minimal effect on the participant.
5. The First Grade Mathematics Episode was made originally in an Ohio University studio for purposes other than that which are suggested here. The original typescript was used in interaction analysis training at the University of Minnesota. The coding found in the current edition was done by the authors and reflects the interpretation suggested in this manual.

   While the U-2 Incident is stable in interchanges and variable in categories, the First Grade Mathematics Episode provides experience with consistency of categories (repeated use), variability and rapidity of interchanges. It should not be used until timing and security with Categories 4, 5 and 8 have been realized by the participants (3-6 hours of previous training). It should not be used for tallying into the matrix until the third session. Secondary school personnel will have difficulty adjusting to this sequence as "education." (Make a joke of this difficulty.)

Comments

The initial reaction of most participants to the rapid questions, answers and interchange pattern will be traumatic. This will be eliminated as they realize the ease with which they are determining appropriate categories. Nonetheless, instructors should begin use of this episode in the same way they began the U-2 Incident, i.e., a minute at a time with short discussions introduced.

PROCEDURES

The instructor should program at least thirty minutes of tallying time in 5b. This is accomplished by repeating Procedure No. 1 in Activity 5a. Use the first ten minutes of the U-2 Incident in ever increasing amounts of time, culminating in at least one five-minute and one ten-minute observation. This will take a minimum of two hours.

1. Tally for three minutes
2. Discuss questions in small groups
3. Instructor should "deal with" unanswered questions as opposed to "answer" them
4. Repeat observation
5. Compare tallies (individually and in groups)
6. Tally for four minutes
7. Repeat Steps 2 through 5
8. Tally for five minutes
9. Repeat Steps 2 through 5
10. Tally for ten minutes
11. The student materials include the U-2 Incident Typescript, pages 37-46, and the Record Sheet: U-2 Incident, page 53, to compare and increase the accuracy of the tallied observations. The exact time of the reference to these materials is left to the instructor's judgment. The following information, however, should be considered in making this decision.
    a. Do not refer to these materials until the participants have had considerable experience (at least 15 minutes of actual tallying) in making independent decisions.

Procedures

b. Instructors should sense the participant's need for external criteria for comparison.

c. After introduction of the criteria, the emphasis should still be on the independent decision of the participant. For example, "It's how you heard that remark." "How do you think the student heard this teacher statement?"

12. Run the last three minutes of the U-2 Incident.

13. Compare individually and discuss in small groups.

14. Deal with a few major questions in the large group.

15. In those instances where maximum time is available and participants show general comprehension, the following steps may be used.

    a. Run sections of First Grade Mathematics, Episode 4, of the training tape

    b. Repeat Steps 1 through 10 as appropriate

RECORD SHEET: U-2 INCIDENT

Observer: ____________________ **Date:** ____________________

10	⑨*	⑨	2	9	9	9	9	4	9	5	5	6	9	5					
3	9	9	9	9	9	3	9	4	9	6	5	6	6	5					
3	9	9	9	2	9	3	9	4	9	6	9	5	5	5					
3	9	9	9	4	9	3	9	9	9	6	3	5	9	9					
5	9	3	9	④	⑨	④	⑩	9	9	4	6	7	5	9					
3	9	4	9	9	2	4	10	⑨	③	④	⑨	⑦	⑤	③					
3	9	9	10	3	3	4	7	9	5	8	9	7	6	3					
9	9	9	10	2	4	8	6	2	5	8	3	6	6	5					
9	9	2	9	8	9	8	7	3	4	8	3	6	6	5					
9	3	9	9	8	9	8	7	10	4	8	3	6	9	10					
9	3	9	4	8	9	8	7	9	4	5	3	6	9						
9	3	2	8	9	9	8	8	9	8	5	6	6	9						
9	3	9	8	4	9	10	7	9	9	5	10	6	9						
9	5	9	3	4	9	4	6	9	9	4	5	6	5						
10	5	9	9	9	3	9	7	4	9	8	5	6	5						
10	5	2	9	9	3	7	7	4	9	3	5	6	5						
9	3	9	9	9	9	7	9	9	9	6	5	6	5						
9	4	9	9	9	9	9	9	9	10	5	5	6	5						
9	8	9	9	9	9	9	9	9	3	8	6	6	5						
9	9	9	9	9	9	9	2	9	3	3	6	4	5						

*A circle indicates the end of one minute.

Summary

Categories

	1	2	3	4	5	6	7	8	9	10	
Totals		9	32	24	35	28	12	19	119	11	289**

**Differences in tally totals can result when the incident is coded by other individuals. The important element is to be consistent in your own judgment.

Transparency/Handout

Activity 5b

FIRST GRADE MATHEMATICS TYPESCRIPT

This episode was a first grade arithmetic class concerned with what a number is and what it means.

CATEGORY

5 T: Well, this morning we're going to do some arithmetic. (1) Who
4 can tell me something about arithmetic? (2) What do I mean
4,10 when I say arithmetic? Do you know? (3) Anybody? What (4)
4,10,4 do I mean when I say numbers? (5) (6) What are numbers? (7)
10 Do you know? Any (8) number?

S: Yes. (many answers)

6 T: All right, what? (9) Tell me one James.

S: Ten.

3 T: Ten's a (10) number. Robert?

S: Twenty.

8 T: Gail? (11)

S: 1000.

4 T: Yes. Karen, do you know a number? (12)

S: Nine.

T: Yes. Terry?

8 S: 101. (13)

4,4 T: Well, what, how many (14) are ten? (15) Anybody know?

S: Ten.

4 T: Ten what? (16)

S: Things.

3 T: Ten things. All (17) right, how many are eight?

8 S: Eight (18) things.

3 T: Eight things. How many are two? (19)

First Grade Mathematics

CATEGORY

8* S: Two things.

5 T: Well, that's what we're going to do today. We're (20) going
5 to talk about just one number. (21) And we're going to tell
5 how many things are in that number. (22) Take a look at our
6 reading group and see if (23) you can tell me how many are in
4,4 our (24) reading group. (25)

S: (Whispering) One, two, three, four, five, six, seven, eight.
8 Eight! (26)

T: Let's count and be sure.

8,8 S: One, two, (27) three, four, five, six, (28) seven, eight!

2,5 T: All right, I only (29) have circles, I don't have children (30)
5 to put up on the flannel board, but (31) let's pretend that
5 these circles are the children (32) in our reading groups. So,
6 let's count eight of them out. (33)

8,8,8 S: One, (34) two, three, (35) four, five, (36) six,
10,8 (37) seven, (38) eight.

2 T: All right. (39)

9 S: Can't we have nine? (40)

5 T: Now, if Mrs. Kelina wanted to make (41) two separate reading
5,5 groups. (42) This is all one reading group. If I wanted (43)
4 to make two separate ones, one (44) here and one here, how could
4 we do (45) that?

8 S: Four each. (46)

8 S: Take it out of there and have four. (47)

T: Take it out of where?

8 S: In our, (48) um, class.

T: Take it.

9 S: You take four out of (49) there and have two groups and you
3 have another left. (50)

---

*When different speakers can be clearly recognized and the classification is simple, tallies are sometimes made at faster rates than one every three seconds for short periods of time.

First Grade Mathematics

CATEGORY

3 T: All right, you want me to take and put four in each (51) group.
3 Is that what you want me to do? All right, let's try (52) that
4 and see if that works? (53) How many do I have there?

8,10 S: (In unison) Four. (54) (55)

T: How many do I have here?

8 S: (In unison) Four. (56)

4 T: How many did we put (57) in each group now, Robert?

8 S: Four. (58)

3 T: Four. All right, I got mixed up on the "Roberts," didn't I? (59)
4 All right, four is how (60) much of our reading group?

8 S: Eight. (61)

S: Half.

3 T: It's half, isn't it, James? (62) We just took our group and
3 cut it right in half, didn't we? (63) And we put four on one
3 side and four on the other (64) side. Well, today we're just
5 going to work with the one (65) number four. With just the
5,4 one (66) number. Did it make any difference (67) how Mrs.
Kelina put the circles up there?

8 S: (In unison) No. (68)

5 T: No. She had some on top and some (69) on the bottom. But they
4 all made how many together? (70)

S: Four.

5,10 T: Four. All right, I've got some pencils (71) here, (72) and I
6 wonder if, Eileen, if (73) you can take up four pencils for me.
10,10 (74) (75) All right, let's see if she took up four. Let's
6 (76) count them.

8 S: One, two, (77) three, four.

4 T: Were there (78) four?

S: Yes.

3 T: Yes, there were. All right, (79) I've got some apples here.
5,6 (80) James, can you see if you can take out four apples for (81)
10 me. (82) Let's count and see?

First Grade Mathematics

CATEGORY		
8,8	S:	One, (83) two, (84) three, four.
4	T:	Did he take out (85) four, Karen?
	S:	Yes.
2 5 5 5 5,4	T:	He certainly did. He knows his (86) number four, doesn't he? Now we're going to try something (87) with the circles. And let's see if I can get you (88) just a little bit mixed up. Let's leave all of the circles (89) pink this morning and then we can try (90) something with them. All right, (91) how many do I have now?
	S:	Three.
4	T:	How (92) many do I have now?
	S:	Four.
4	T:	How many do I (93) have now?
8	S:	Four. (94)
	T:	This time?
8,10	S:	Four, four, (95) four. (96)
4	T:	Did it make any difference where I (97) put the circles?
	S:	No.
4	T:	We still had (98) how many? Robert Walker?
8	S:	Four. (99)
4	T:	Four. This time I'm going to try to catch you. (100) Are you ready?
	S:	Yes.
4 4	T:	All set? All (101) right, how many arms do you have, Robert (102) Walker?
	S:	Two.
3	T:	Two (103) arms. How many boys are you?
8	S:	One (104)
3 4	T:	One boy has two arms. All right (105) how many arms will two boys (106) have, Robert?

First Grade Mathematics

CATEGORY

S: Four.

2,4 T: Good for you. (107) How many legs do you have, Gail? (108)

S: Two.

4 T: How many will, legs will two (109) girls have?

S: Four.

4 T: Kathy, how many legs (110) does a chair have?

8 S: Four. (111)

4 T: How do you know? (112) How do you know that a chair has four?
4 (113)

8 S: So, so it could stand. (114)

4 T: It has to have the legs where? (115)

S: Underneath.

4 T: Yes, where else? (116)

S: I know.

8 T: Robert? (117)

S: On each side.

3 T: On each side doesn't it? (118) And there's another name for
4 that side, it's not (119) a side but it's what? Where is it
4 that (120) the legs are?

8 S: In the back. (121)

4 T: Well, I'm thinking of another word that starts like come. (122)
10 (123)

S: Corner.

3 T: Corner, they're on the corner. How many (124) corners does a
chair have?

8 S: Four. (125)

3 T: Four corners, and that's where the legs have to be. (126) All
4,4 right, how many noses (127) do you have? Terry? (128)

First Grade Mathematics

CATEGORY

S: One.

4 T: One nose. How (129) many noses, or how many children's noses
4 would you (130) have to have to make four?

8 S: Four children. (131)

3 T: Four children. All right, how (132) many are in your family,
4 Robert Walker, ah, Rocky? (133)

S: Nine.

3 T: Nine in your family. Is that (134) more or less than four?

8 S: More. (135)

3 T: It's more than four. Do you know how many more than (136) four?
4 (137)

S: Five.

2,4 T: Good (138) for you. Five more than four. How (139) many are
in your family Eileen?

8 S: Four, (140) and two downstairs.

4 T: And how many would that (141) make all together?

8 S: Six (142)

T: Is that more or less than four?

8 S: More. (143)

T: More than four. James, how many do you...

9 S: I can't count (144) all in my family.

6 T: You can't. Well, let's start right now. (145)

8,10 S: (Child counting slowly up to twelve) (146) (147) (148) Twelve.
10

3 T: Good, (149) twelve. Is that more or less than four?

8 S: More, (150) I know.

3 T: More than four. (151) How many more?

8 S: Eight. (152)

First Grade Mathematics

CATEGORY

3 T: Eight more than four. Isn't that something. (153) That's
4 a pretty big family. Karen, how many (154) do you have in your
family?

S: Four.

3,4 T: You have (155) four. Is that more or less than four or (156)
the same?

S: The same.

3 T: It's the same, isn't it? (157) Terry did I ask you how many
4,4 you have in your family? (158) How many do you have? (159)
10 (160)

S: Eight.

3 T: Eight. Is (161) that more or less than four?

S: More.

4,4,10 T: And how (162) many more? (163) (164)
10,10 (165) How many children did (166) we have in our reading
group? Do you remember?

8 S: Eight. (167)

4 T: And what did we do with that reading group? We (168) split
it in....

S: Half.

4 T: And how many did we put (169) on each side?

S: Four.

4,4 T: How many (170) more than four then do you have? We've got (171)
4 your family here with four and how many more? (172) You had
5 eight didn't you? We've got (173) half of them here, how many
4,10,4 more? (174) (175) Who can help her? (176) Robert?

S: Four.

3,4 T: Four more. (177) All right, Kathy, did I ask you how (178) many
you have in your family?

S: No

4 T: How many do you have? (179)

First Grade Mathematics

CATEGORY

S: Six.

3 T: Is that more or less than four? (180)

8 S: No, (181) no.

4,4 T: More or (182) less than four, do you know? Let's (183) count, how many do we see up here?

8 S: One, two.... (184)

4 T: And you (185) said you had how many?

S: Six.

3 T: Six, (186) all right, let's go on and see if we can get six,
4 how many (187) do we have up here now?

8 S: Four. (188)

4 T: What will this make? (189)

S: Five.

T: Five.

S: Six.

4,4 T: All right, (190) is that more or less than four? (191)
10,10 (192) (193)

S: No.

5,4 T: Well, let's take (194) this in another way. (195) How many
4 did you say we had here Kathy? (196)

S: Four.

5 T: Four, all right, that's (197) the number that we're looking for,
4 isn't it? If I (198) took one away how many would we have?

8 S: Three. (199)

5 T: That would mean we had less than four because (200) I took one
4 away. All right, (201) how many do I have now?

S: Four.

First Grade Mathematics

CATEGORY

5,4 T: But (202) I'm putting on some more to make six. (203) Is that
10,10 more than (204) four? (205)
10,10 (206) (207) Did we take any away, Kathy?
4, 4 (208) This time, did we take any away? (209) No, we didn't.
5, 4 (210) We put some more on, didn't we? (211) So, that makes what?

8 S: Six. (212)

5 T: It makes more than four, because we put (213) some more on. If
5,5 we take them (214) away, that means we have less (215) than four,
5,5 but if we put (216) more on, that means we (217) have more than
5 four. Let's try it (218) again, Kathy. How many do we have
4 now? (219)

S: Four.

4 T: All right, how many now? (220)

S: Two.

3,4 T: Is that more or less (221) than four? (222)

S: Less.

T: All right, because what did we do?

S: We took some away.

4 T: We took some away. (223) How many do we have now?

S: Four.

4,4 T: All right. (224) We're going to, what did we do this (225) time.

S: Put some more on.

4,4 T: Do we have more (226) or less than four? (227)

S: More.

3 T: We have more because what did (228) we do?

S: We put them on.

4 T: All right, how many (229) do we have here now.

S: Six.

Activity 5b

First Grade Mathematics

CATEGORY

4,10 T: Is that more (230) or less than four? (231)
10,10,4 (232) (233) If you have four pencils (234) over here
4,10,4 (235) (236) and six pencils (237) over here, which
4 one's (238) more, four or six?

8 S: Six. (239)

3 T: Six is that more than four? (240) All right, do you have more
4 or less than four (241) here?

8 S: More. (242)

3 T: More, we had to put them on didn't we? (243) Good for you,
4 Kathy. All right (244) is there anybody I missed? Didn't I
4 get your family, (245) Robert? Oh, how many do you have?

8 S: Six. (246)

4 T: You have six too. Is that more or less (247) than four?

S: More.

3 T: That's more. (248) All right, now I've got something else.
5,4 Listen carefully. (249) Is four cents (250) more or less than
4 a nickel? (251)

S: I don't know.

8 S: I don't know. (252)

T: Eileen?

8 S: Less. (253)

T: How much less?

8 S: One penny. (254)

3 T: One penny. All right, does (255) school close before or after
4,4 (256) four o'clock? (257) Gail?

8 S: Before. (258)

3 T: Before four o'clock. All right, what time is your (259) favorite
4,4 T.V. show? (260) Who can tell me? Can you think? (261) Eileen?

8 S: Twelve o'clock, (262) noon.

First Grade Mathematics

CATEGORY

3 T: Twelve o'clock, noon. Is that before (263) or after
4 four o'clock? (264)

S: After.

5,5 T: Twelve (265) o'clock, noon. Well, ha, ha, ha, we can (266) kind
5 of take that two ways if we're talking about four (267) o'clock
5 in the morning or four o'clock in the afternoon. (268) I'm
5 talking about four o'clock in the afternoon now. (269) Would
4,4 twelve noon (270) be before or after four o'clock (271) in the
4,10 afternoon? (272) Figure that one out. (273)
10,10,4 (274) (275) Twelve noon when? (276)

S: At noon.

3 T: At noon. When you have what? (277)

S: Lunch.

5 T: Lunch. All right, (278) now I'm talking about four o'clock in
5 the afternoon. (279) When did you say school closed? Before
4 (280) or after four o'clock?

S: Before.

3,4 T: Before. (281) All right, when is twelve o'clock, noon? (282)
Is that before or after four o'clock?

8 S: Before. (283)

2 T: Before. Good for you. (284)

Activity 5b

FIRST GRADE MATHEMATICS MATRIX

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				3	2					1	6
3		1	8	12	3			21		4	49
4				20	2			63	1	9	95
5				16	22	1		1		1	41
6								2		3	5
7				1							1
8		5	39	31	10	2	1	7	2	3	100
9			2			1					3
10				12	2	1		6		11	32
TOTAL TALLIES		6	49	95	41	5	1	100	3	32	332
INCIDENTS		6	41	75	19	5	1	93	3	21	
Percent of Total		1.8	14.8	28.6	12.4	1.5	.3	30.1	.9	9.6	
	45.2				14.2			31.0		9.6	
	Teacher Total: 59.4							Student Total		Silence	

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EXTERNAL RELIABILITY

Description

This activity is a continuation of the tallying of taped lessons with some additional objectives.

Trainer Materials	TAPE: U-2 Incident, Episode 2
	TAPE: First Grade Mathematics, Episode 4
	Tape Recorder
Participant Materials	HANDOUT: Tally Sheets (Several Per Participant)
	HANDOUT: U-2 Incident Typescript, pages 37-46
	HANDOUT: Record Sheet: U-2 Incident, page 53

Rationale

While still maintaining concern for internal consistency, the emphasis now shifts to greater focus for the accuracy of the participants' responses. Comparisons between participants, discussions with the instructor, and references to the record sheet and typescripts are used to expose differences. Small group discussions and individual consultation are useful in helping participants examine the ground rules and rationale for making these decisions.

Objectives

1. The participant will develop external reliability by comparing his observations with other participants and the typescripts.

Objectives

2. Further practice will cause participants to realize the difficulty with:
    a. Rapid interchanges in short time intervals
    b. Extended observations for ten minutes or longer
3. Participants will have developed sufficient confidence to enable them to make independent observations during the time between Sessions I and II.

Comments

1. Throughout the workshop and especially after the initial exposure to the system, the instructor should make every effort to withdraw from an authoritarian role in answering questions. The questions should be directed back to the individual asking them or to others in the workshop. Comments such as "what do you think" or "what are the possible responses" may be used.
2. For some individuals the counting of the number of tallies, as well as comparisons with self, others and the typescript will encourage and provide reinforcement that they are developing their expertise. Discrepancies should be considered. Possibly, looking at the percentage of error might give a realistic picture of their competence.
3. The first session of tallying is an attempt to develop their skill to the point that they can make several independent observations before the next part of the workshop. Therefore, developing confidence in the individual participant should be of prime concern.

Comments

4. The Record Sheet is provided for the student to use as a check against his accuracy and as a source for discrepant tallies. It represents the tallies made by the authors when listening to the U-2 Episode. The circled tallies indicate one minute intervals. Matrix and category totals appear following the typescript and on the previous page.

PROCEDURE

1. Repeat Steps 1-3 in Activity 5b with increasing emphasis on individual comparison with external criteria. Observations should be lengthy (four to seven minutes) followed by small group discussions of differences between members and with criteria.
   a. Tally (three to seven minutes)
   b. Discuss questions and problems in small groups
   c. Instructor deals with (as opposed to answers) group questions
2. During this activity, at least once, participants should count the tallies in each category for the first 100 tallies of the U-2 Incident using the Summary section of the Tally Sheet. If accurate, the totals should be:

Category	1	2	3	4	5	6	7	8	9	10	T
Totals - First 100 Tallies		6	13	7	4	-	-	6	59	5	100
- Second 100 Tallies		3	10	13	2	2	9	7	39	5	100
- First 200 Tallies		9	23	20	6	2	9	13	108	10	200
- Entire Episode		9	32	24	35	28	12	19	119	11	289

3. This activity should culminate in an observation of the entire U-2 Incident. If considerable use has been made of the First Grade Mathematics tape, it could be used instead. This tape, however, should be used only with groups who are quite advanced.

ANALYSIS

Overview

Now that reliability and confidence in the participants' ability to gather data has been developed, the emphasis shifts to how this data might be analyzed. Such analysis includes transference of the data from the tally sheets to the finished matrix, matrix geography and matrix analysis. It is essential this process be completed in the first session so participants leave after a full exposure to the entire system.

Activity 6a

TRANSCRIPTION

Description

The participants will be taught the procedure of transcribing the tally to a matrix. Practice in this procedure will be provided.

Trainer Materials	FILMSTRIP: Studying Teacher Influence, Part 4. TAPE: Soundtrack, Episode 3 TRANSPARENCY: Working Matrix, page 73 Filmstrip Projector and Tape Recorder Overhead Projector and Pen
Participant Materials	HANDOUT: Record Sheet: U-2 Incident, page 53 HANDOUT: Working Matrix, page 73 Multiple Copies in Appendix A, page 204 HANDOUT: Finished Matrix, page 74 Multiple Copies in Appendix A, page 205

Rationale

This activity provides an opportunity for the trainer to instruct the participants in the clerical task of transfering data from its original form to a more usable form.

Objectives

1. The participants will be able to transfer raw data from the tally sheets to the Working Matrix to the Finished Matrix without error.
2. The participants will be able to compute appropriate row and column totals, incidents and percentages.

PROCEDURES

1. Instruct participants to work with the Record Sheet: U-2 Incident. Make sure they have multiple copies of the Working Matrix and Finished Matrix forms.
2. Show filmstrip, Studying Teacher Influence, Part 4 through the first twenty frames. (Until the matrix is complete.)
3. Review the process using a Working Matrix Transparency by tallying a minute or two of the record sheet tallies. Remember:
   a. Each tally is used twice
   b. In any pair of tallies the first number locates the row, the second number locates the column
   c. At no time can more than one tally in a row be placed in a cell other than those on the diagonal. These squares are called "steady state" cells
4. Instruct the participants to:
   a. Transfer the tallies from the record sheet to the working matrix to the finished matrix
   b. Compute appropriate arithmetical statistics
5. Quickly circulate throughout the room to ascertain that each participant is following correct procedures. This activity will take thirty minutes.
6. If time is a problem the instructor may want them to do only the first five or ten minutes--corresponding matrices are provided on pages 44-46.

WORKING MATRIX

1	2	3	4	5	6	7	8	9	10
1									
2	2								
3		3							
4			4						
5				5					
6					6				
7						7			
8							8		
9								9	
10									10

Transparency/Handout

FINISHED MATRIX

CLASS CODE NO__________________OBSERVER____________DATE__________

CATE-GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
TOTAL TALLIES											
INCI-DENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

Activity 6b
OPTIONAL

MATRIX GEOGRAPHY

Description

This activity introduces a system for analyzing the matrix. A film is used to give an example of such an analysis.

Trainer Materials	FILM: Interpretation of an Interaction Analysis Matrix
	TRANSPARENCIES: Set A, pages 82-90
	Projectors (16mm and Overhead)
Participant Materials	HANDOUT: American History Matrix I, page 80
	HANDOUT: American History Matrix II, page 81

Rationale

The material has now been transferred to a matrix and is ready for inspection. The emphasis in this section will be on a systematic review of all the information so that in further analysis no pertinent data will be overlooked.

Basically, totals and summaries are at the bottom of the matrix. Numerical descriptions of interactions or amounts of continuous activity are in the cells.

Objectives

1. The participants will know the meaning of tallies in any given cell.
2. The participants will be able to develop a "before" and "after" sequence of events as depicted on a matrix.
3. The participants will identify patterns of verbal influence as depicted on a matrix.
4. The participants will develop a modus operandi for analyzing an interaction analysis matrix.

Comments

1. It is necessary to retain minimal lighting during the showing of the film so that participants can continually refer to the matrices provided them.
2. Review suggested in Procedures 3-5 can be short since the matrices are reviewed each time they are analyzed.
3. The modus operandi for analyzing an interaction matrix will include:
    a. Start an analysis by examining the gross figures at the bottom
    b. Examine incidents and steady state totals
    c. Designate significant cells
    d. Determine patterns of influence
    e. Locate miscellaneous areas of concern
4. Activity 6c repeats the entire process with a new matrix and need not be separated noticeably from this activity.
5. The film, Interpretation of an Interaction Analysis Matrix, was produced for use in the workshops field testing Laboratory materials. It endeavors to preserve the standard interpretation of matrices suggested for this method of analyzing interaction.

    The film should be used in a dimly lit room while participants have in front of them the American History matrices. The film is divided into three parts. with five feet of leader film between each to facilitate location and interruption of the showing. It should not be used in one continuous showing. It moves much too fast for such use.
6. The American History matrices were made by one of the authors in an Oregon junior high school several years ago. The matrices are representative of two lessons, each taught by a different female

Comments

beginning teacher. The students are "average" eighth graders in a lower middle-class community. The subject under consideration was the Preamble C, Article I, of the U. S. Constitution. The lessons were planned together but taught individually the same morning in February.

The matrices are included in the package for several reasons.

a. The patterns are easily recognizable as typical teaching behavior

b. The significant cell leadings are large

c. No obvious "faults" or "errors" will lead participants to overgeneralizations

d. Hypotheses about cell leadings are "checkable" and easily accepted or rejected

e. (For use in the second session) The three primary and secondary patterns are identical in the two matrices even though the specific cell leadings are diametrically different due primarily to steady state differences

The instructor should immediately begin to develop in the participants the ability to redefine or illustrate each specific cell as classroom behavior. For example, what are teachers or students doing when a tally is made in 5-9, or 3-9, or 5-4, etc.

7. Transparency Sets A and B are designed to break down the process of analyzing a matrix into its several parts. Each transparency illustrates a specific step in the analytic process; numerical subscripts (A-1, A-2, A-3, etc.) indicate the correct order. These sets are designed for use in Activities 6b, 9 and 15 but can be used at any time review seems necessary.

PROCEDURES

1. Refer the participants to the American History matrices. Instruct them to have Matrix II available for quick reference while they watch the film.
2. Show the first section of the film Interpretation of an Interaction Analysis Matrix. Stop the film at the first black leader, about eight minutes from the beginning.
3. Using both the matrices, review the concepts introduced. Such questions as:
    a. How many questions (or student ideas, lecture, statements of praise, etc.) were asked in the class represented by Matrix I?
    b. How long did (No. 2, No. 4, lecture, etc.), once started, continue?
4. When questions and concepts seem to be clarified, show the second section of the film, approximately twelve minutes.
5. Again using both matrices, review the concepts and procedures introduced in the second section. Such questions as:
    a. What activities followed the teacher's use of 2's, 3's, 4's, 5's and 6's?
    b. How did the teacher respond to 8's, 9's or 10's?
    c. What activities preceded the teacher's use of (choose any category, name or number)?
    d. What teacher activities resulted in 8's, 9's or 10's?
6. When questions and concepts seem to be clarified, show the last section of the film.
7. Using both matrices, review the concepts and procedures introduced in the last section.

Procedures

8. Have the participants determine patterns of influence for Matrix I, first alone, then in small groups.
9. Respond to procedural questions. Transparency Set A has been prepared to duplicate the key points in the film. The instructor will find it useful at this point.

Activity 6b
OPTIONAL

AMERICAN HISTORY MATRIX I

CATE-GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				1					3		4
3			20	27				3	7	2	59
4				44				37	11	17	109
5				2	5	1				2	10
6				1						1	2
7											
8		1	22	15				24	3	2	67
9		2	17	4	3				59	2	87
10		1		15	2	1		3	4	44	70
TOTAL TALLIES		4	59	109	10	2		67	87	70	408
INCI-DENTS		4	39	65	5	1		43	28	27	
Percent of Total		1	14	27	2.5	.5		16	22	17	
	42				3			38		17	
	Teacher Total: 45							Student Total		Silence	

Activity 6b
OPTIONAL

AMERICAN HISTORY MATRIX II

CATE-GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2					1						1
3			58	22	13					2	95
4				99	1			31	17	15	163
5				17	75			1	3	1	97
6				1							1
7											
8		1	22	11	2			18	1	1	56
9			14	3	4				30	1	52
10			1	10	1	1		6	1	17	37
TOTAL TALLIES		1	95	163	97	1		56	52	37	502
INCI-DENTS		1	37	64	22	1		38	22	20	
Percent of Total		.2	18.9	32.7	19	.2		11.2	10.4	7.4	
	51				19.2			21.6		7.4	
	Teacher Total: 71							Student Total		Silence	

Activity 6b
TRANSPARENCY A-1

AMERICAN HISTORY MATRIX II

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2					1						1
3			58	22	13					2	95
4				99	1			31	17	15	163
5				17	75			1	3	1	97
6				1							1
7											
8		1	22	11	2			18	1	1	56
9			14	3	4				30	1	52
10			1	10	1	1		6	1	17	37
TOTAL TALLIES		1	95	163	97	1		56	52	37	502
INCIDENTS		1	37	64	22	1		38	22	20	
Percent of Total		.2	18.9	32.5	19.2	.2		11.2	10.4	7.4	
	51.6				19.4			21.6		7.4	
	Teacher Total: 71.0							Student Total		Silence	

Activity 6b
TRANSPARENCY A-2

SUMMARY INFORMATION

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
TOTAL TALLIES		1	95	163	97	1		56	52	37	502
INCIDENTS		1	37	64	22	1		38	22	20	
Percent of Total		.2	18.9	32.5	19.2	.2		11.2	10.4	7.4	
	51.6				19.4			21.6		7.4	
	Teacher Total: 71.0							Student Total		Silence	

Activity 6b
TRANSPARENCY A-3

STEADY STATE CELL

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			58								
4				99							
5					75						
6											
7											
8								18			
9									30		
10										17	
TOTAL TALLIES		1	95	163	97	1		56	52	37	
INCIDENTS		1	37	64	22	1		38	22	20	
Percent of Total											
	Teacher Total:							Student Total		Silence	

Activity 6b
TRANSPARENCY A-4

NUMBER OF INCIDENTS

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2					1						
3				22	13					2	
4					1			31	17	15	
5				17				1	3	1	
6				1							
7											
8		1	22	11	2				1	1	
9			14	3	4					1	
10			1	10	1			6	1		
TOTAL TALLIES											
INCIDENTS		1	37	64	22	1		38	22	20	
Percent of Total											
	Teacher Total:							Student Total		Silence	

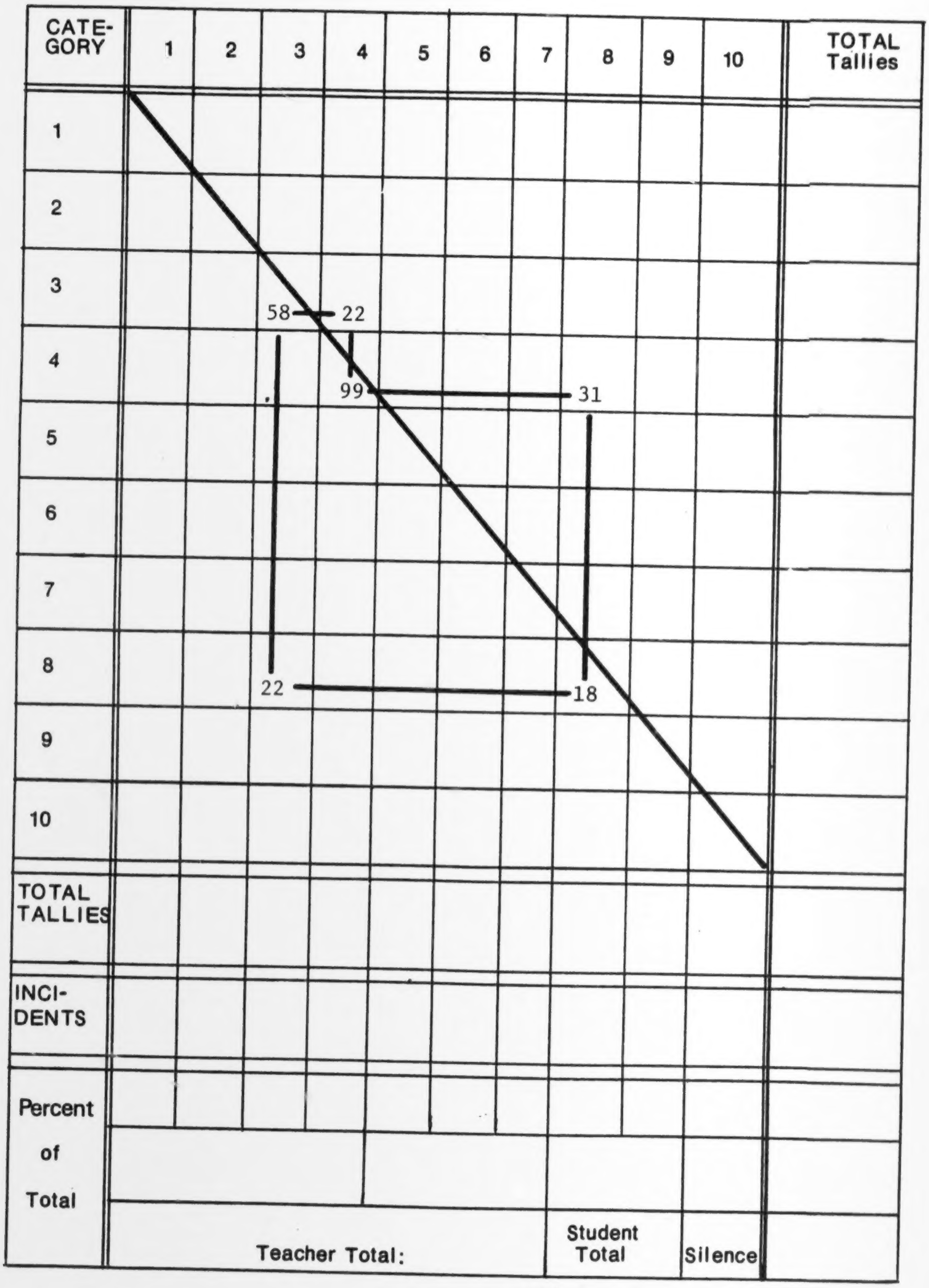
Activity 6b
TRANSPARENCY A-5

SIGNIFICANT CELLS

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			58	22	13						
4				99				31	17	15	
5				17	75						
6											
7											
8			22	11				18			
9			14						30		
10				10						17	
TOTAL TALLIES											
INCIDENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

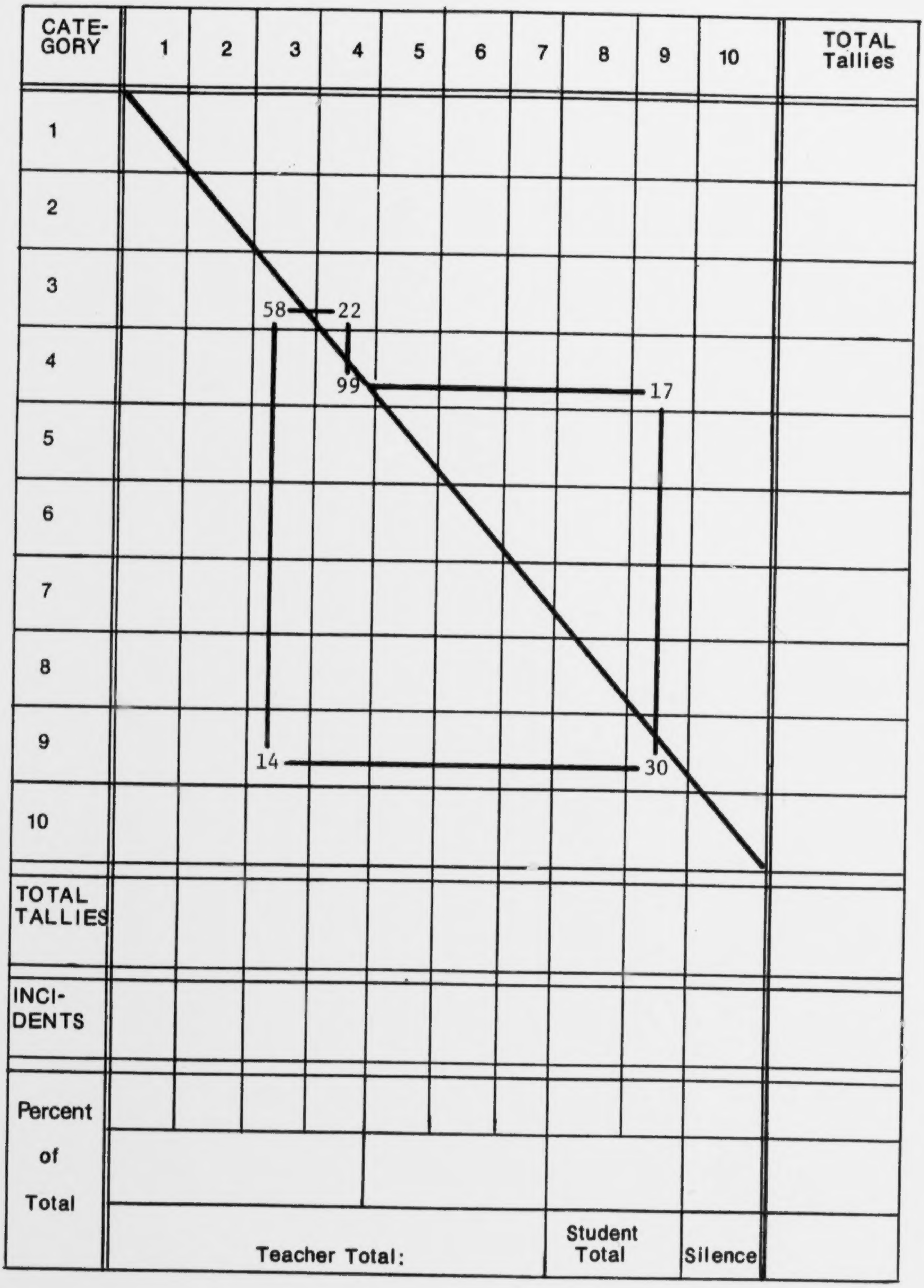
Activity 6b
TRANSPARENCY A-6

PRIMARY PATTERN


CATE-GORY
1
2
3
4
5
6
7
8
9
10
TOTAL Tallies
TOTAL TALLIES
INCI-DENTS
Percent of Total
Teacher Total:
Student Total
Silence
58
22
99
31
22
18

Activity 6b
TRANSPARENCY A-7

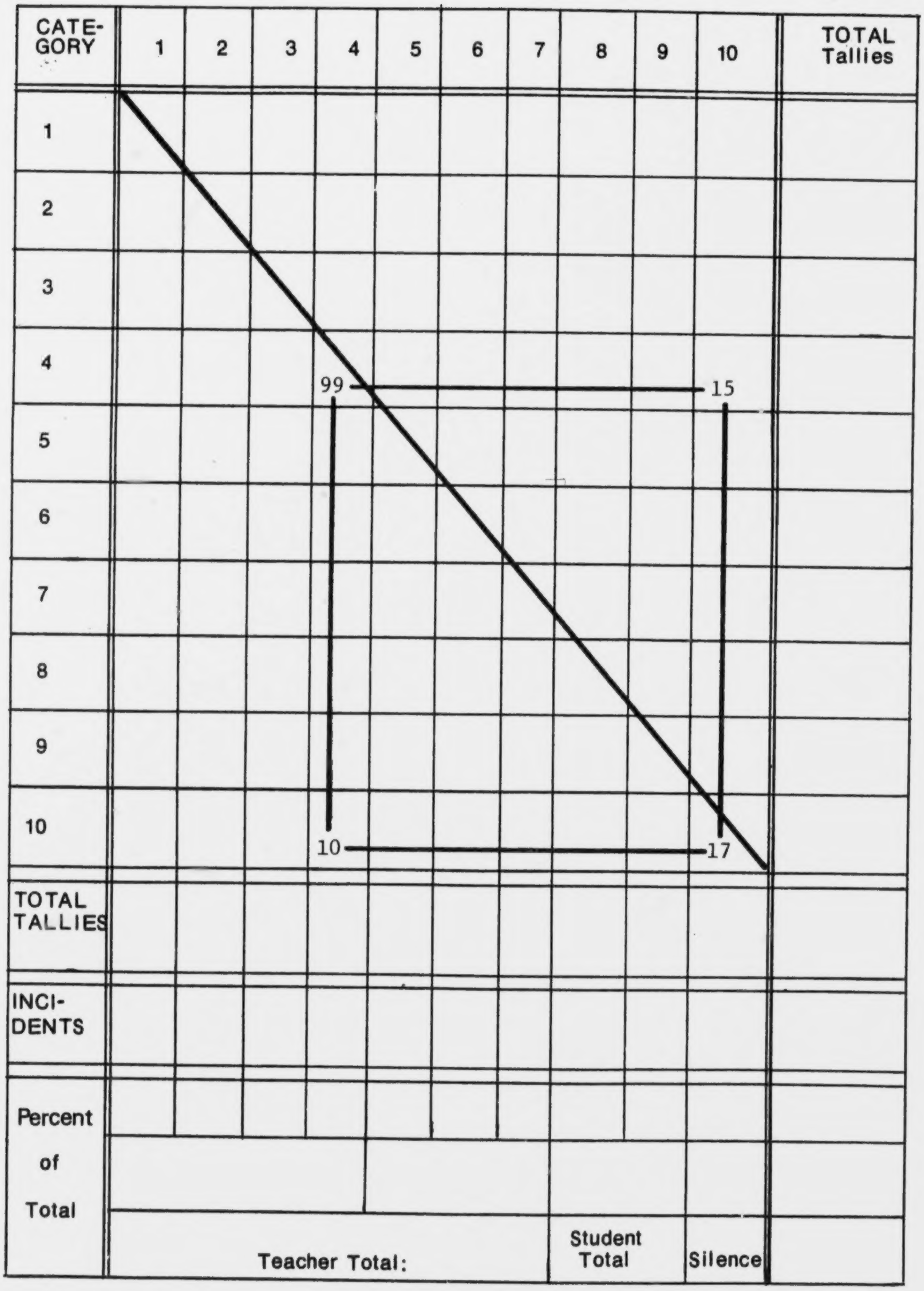
SECONDARY PATTERN



CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			58	22							
4				99					17		
5											
6											
7											
8											
9			14						30		
10											
TOTAL TALLIES											
INCIDENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

Activity 6b
TRANSPARENCY A-8

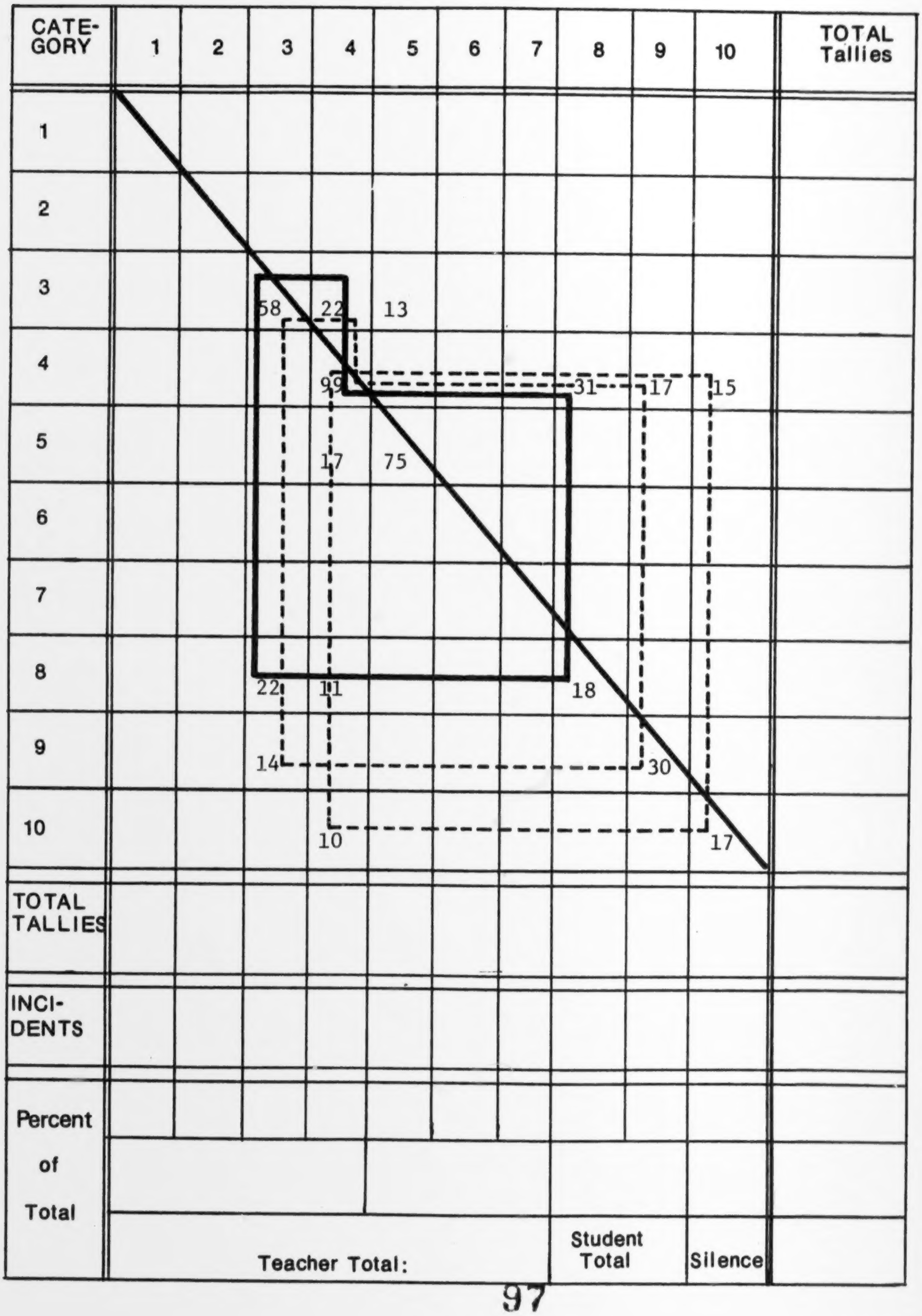
SECONDARY PATTERN



CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3											
4				99						15	
5											
6											
7											
8											
9											
10				10						17	
TOTAL TALLIES											
INCIDENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

Activity 6b
TRANSPARENCY A-9

SUMMARY OF ALL
PATTERNS OF INFLUENCE



CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			58	22	13						
4				99				31	17	15	
5				17	75						
6											
7											
8			22	11				18			
9			14						30		
10				10						17	
TOTAL TALLIES											
INCIDENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

MATRIX ANALYSIS

Description

This activity is a continuation of the development of a "system of analysis." This is the last activity of the first session.

Trainer Materials	TRANSPARENCIES: Set B, pages 96-103
	Overhead Projector
	Amidon and Hough textbooks available for distribution
Participant Materials	HANDOUT: Social Studies Matrix I, page 94
	HANDOUT: Social Studies Matrix II, page 95

Rationale

The purpose of this activity is to take a completed matrix (Matrix II, page 95) and systematically review all the information it contains. This is the last activity of the first session. It will form the basis for the participants' analyzing their own matrices developed before the next session. Emphasis will be on developing a system of detailed analysis so pertinent information will not be overlooked.

Objectives

1. Participants will review procedures for matrix analysis developed in previous session. (See all the objectives for Activity 6b.)
2. Participants will develop and refine a systematic procedure for matrix analysis.
3. Participants will develop confidence in their ability to analyze their own matrices to be developed in between the first and second sessions.

Comments

1. In order to emphasize a systematic review of a matrix, which begins with the information at the bottom, a series of questions might be asked the final review.
    1. How long was the observation?
    2. Where were there the most tallies?
    3. What percentage of the total tallies were 3's? 10's?
    4. What was the percentage of direct and/or indirect talk?
    5. What was the total percentage of teacher and/or student talk?
2. The instructor may have to review very carefully if individuals are having trouble with reading the number of incidents or what the information means in each cell.

    EXAMPLE: What is the 9-3 cell? A nine followed by a three, a divergent student response followed by a three, a divergent response followed by a teacher using or repeating this information, as, "How many times did this happen?"
3. This pair of social studies matrices represents two teachers conducting review sessions prior to a unit test. One class was conducted in an Idaho high school, eleventh grade U. S. History, and the other was a geography class in a Washington junior high school. The pair is included in the package because:
    a. The ease of following the pattern in Matrix II
    b. The clarity of before/after sequencing due to the simplicity of Matrix II
    c. The dramatic differences in cell loadings and nonzero cells between the two matrices

PROCEDURES

1. Have participants turn to the social studies matrices.
2. Have participants individually review information on Matrix II. (Five to ten minutes)
3. Ask participants to break into groups of six to discuss the information it contains. (Ten to fifteen minutes)
4. Instructor should finish the activity by reviewing the matrix. The question raised for the participants would be, "Did you examine this information?"
    a. Use Transparency Set B in order indicated for review of the proper procedure. Encourage questions from the group if they do not understand.
    b. Using Matrix I, have a brief question-answer session to clarify any doubts or misconceptions.

Activity 6c

SOCIAL STUDIES MATRIX I

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2		13	5	6					3	2	29
3		7	51	18	7	1	1	2	5	5	97
4		1	3	75	5		6	33	16	10	149
5		2	1	13	61	1		2	3	7	90
6					1	2		3	2	1	9
7				3	1	1	6		5	1	17
8		1	20	12	2		2	2	3		42
9		2	16	14	8		1		57	1	99
10		3	1	8	5	4	1		5	22	49
TOTAL TALLIES		29	97	149	90	9	17	42	99	49	578
INCIDENTS		16	46	74	29	7	11	40	39	27	
Percent of Total		5.1	17	26	15	1.6	3	7.1	16.7	8.5	
	48.1				19.6			23.8		8.5	
	Teacher Total:							Student Total		Silence	

SOCIAL STUDIES MATRIX II

CATE-GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				1							1
3			156		26				42	2	226
4									2		2
5					126				24	2	152
6									2		2
7											
8											
9			66			2			134	2	204
10		1	4	1						6	12
TOTAL TALLIES		1	226	2	152	2			204	12	599
INCI-DENTS		1	70	4	26	2			70	6	
Percent of Total		.1	37.6	.3	25.6	.3			34	2	
	38.0				26.0			34.0		2.0	
	Teacher Total: 64							Student Total		Silence	

Activity 6c
TRANSPARENCY B-1

SOCIAL STUDIES MATRIX II

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				1							1
3			156		26				42	2	226
4									2		2
5					126				24	2	152
6									2		2
7											
8											
9			66			2			134	2	204
10		1	4	1						6	12
TOTAL TALLIES		1	226	2	152	2			204	12	599
INCIDENTS		1	70	2	26	2			70	6	
Percent of Total		.1	37.6	.2	25.6	.3			34	2	
	38.0				26.0			34.0		2.0	
	Teacher Total: 64.0							Student Total		Silence	

Activity 6c
TRANSPARENCY B-2

SUMMARY INFORMATION

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
TOTAL TALLIES		1	226	2	152	2			204	12	599
INCIDENTS		1	70	2	26	2			70	6	
Percent of Total		.1	37.6	.3	25.7	.3			34	2	
	38.0				26.0			34.0		2.0	
	Teacher Total: 74.0							Student Total		Silence	

Activity 6c
TRANSPARENCY B-3

STEADY STATE CELLS

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			156								
4											
5					126						
6											
7											
8											
9									134		
10										6	
TOTAL TALLIES		1	226	2	152	2			204	12	599
INCIDENTS		1	70	2	26	2			70	6	
Percent of Total											
	Teacher Total:							Student Total		Silence	

Activity 6c
TRANSPARENCY B-4

NUMBER OF INCIDENTS

CATE-GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				1							
3					26				42	2	
4									2		
5									24	2	
6									2		
7											
8											
9			66			2				2	
10		1	4	1							
TOTAL TALLIES											599
INCI-DENTS		1	70	2	26	2			70	6	
Percent of Total											
	Teacher Total:							Student Total		Silence	

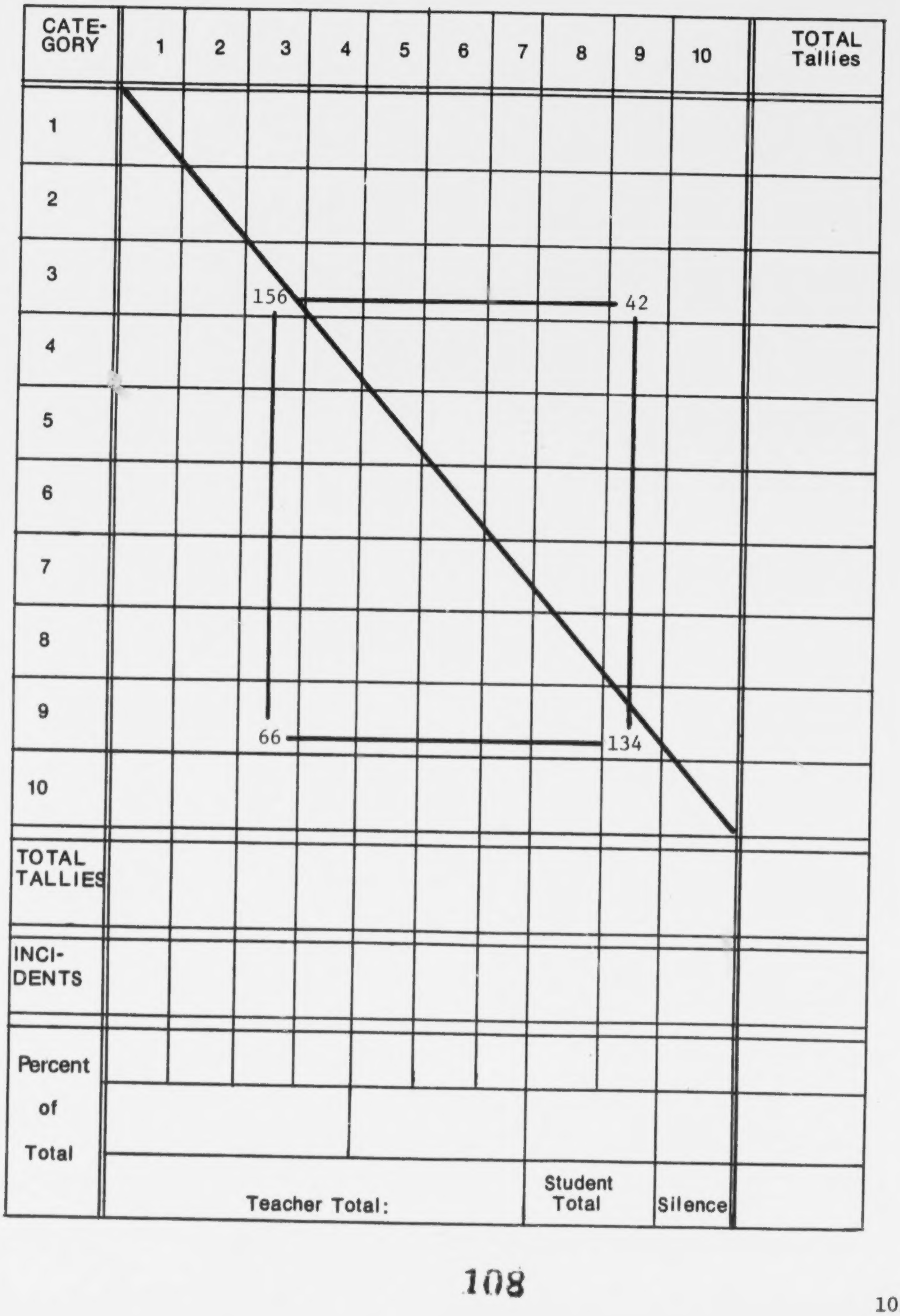
Activity 6c
TRANSPARENCY B-5

SIGNIFICANT CELLS

CATE-GORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			156		26				42		
4											
5					126				24		
6											
7											
8											
9			66						134		
10											
TOTAL TALLIES											
INCI-DENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

Activity 6c
TRANSPARENCY B-6

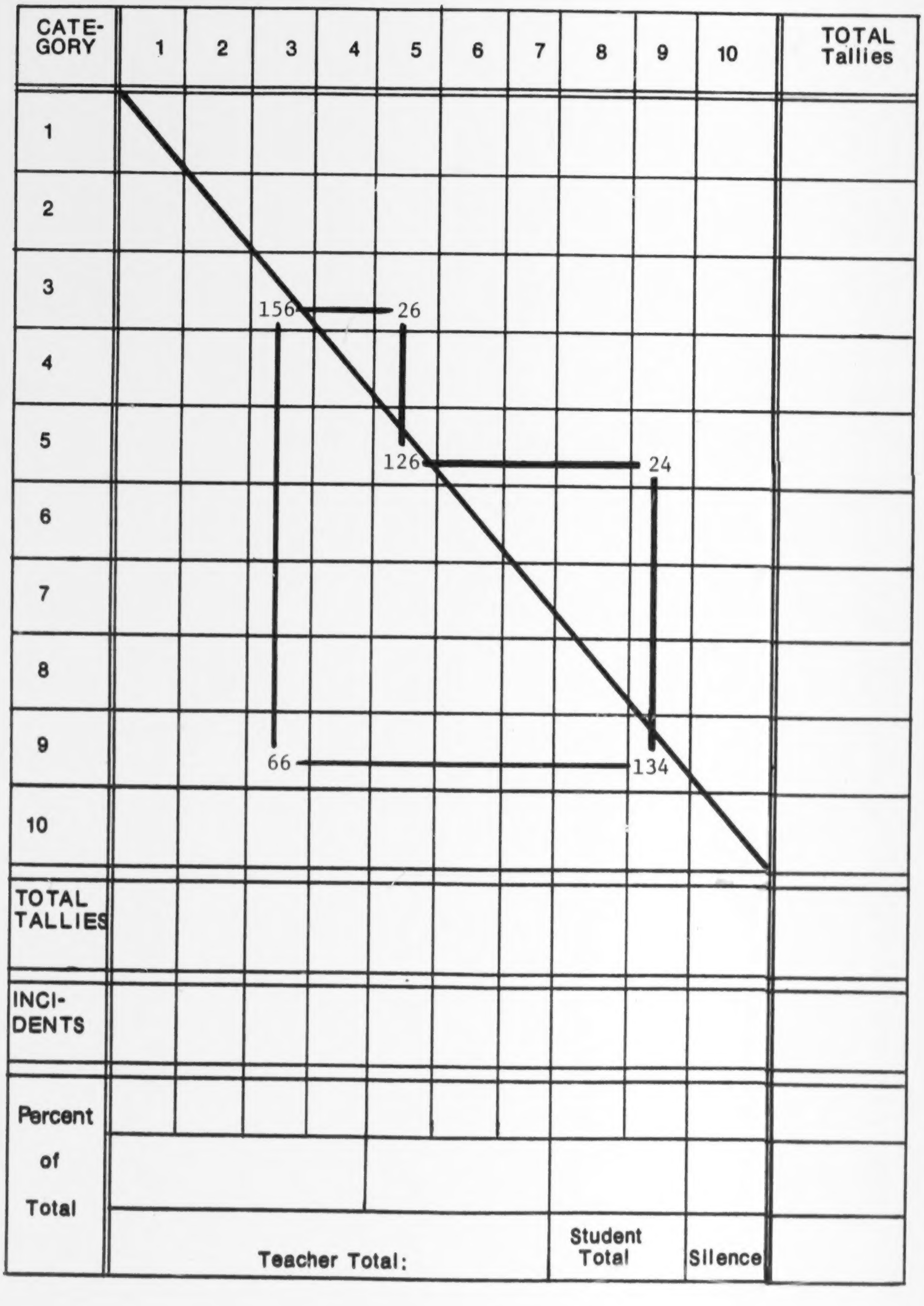
PRIMARY PATTERN



CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3			156						42		
4											
5											
6											
7											
8											
9			66						134		
10											
TOTAL TALLIES											
INCIDENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

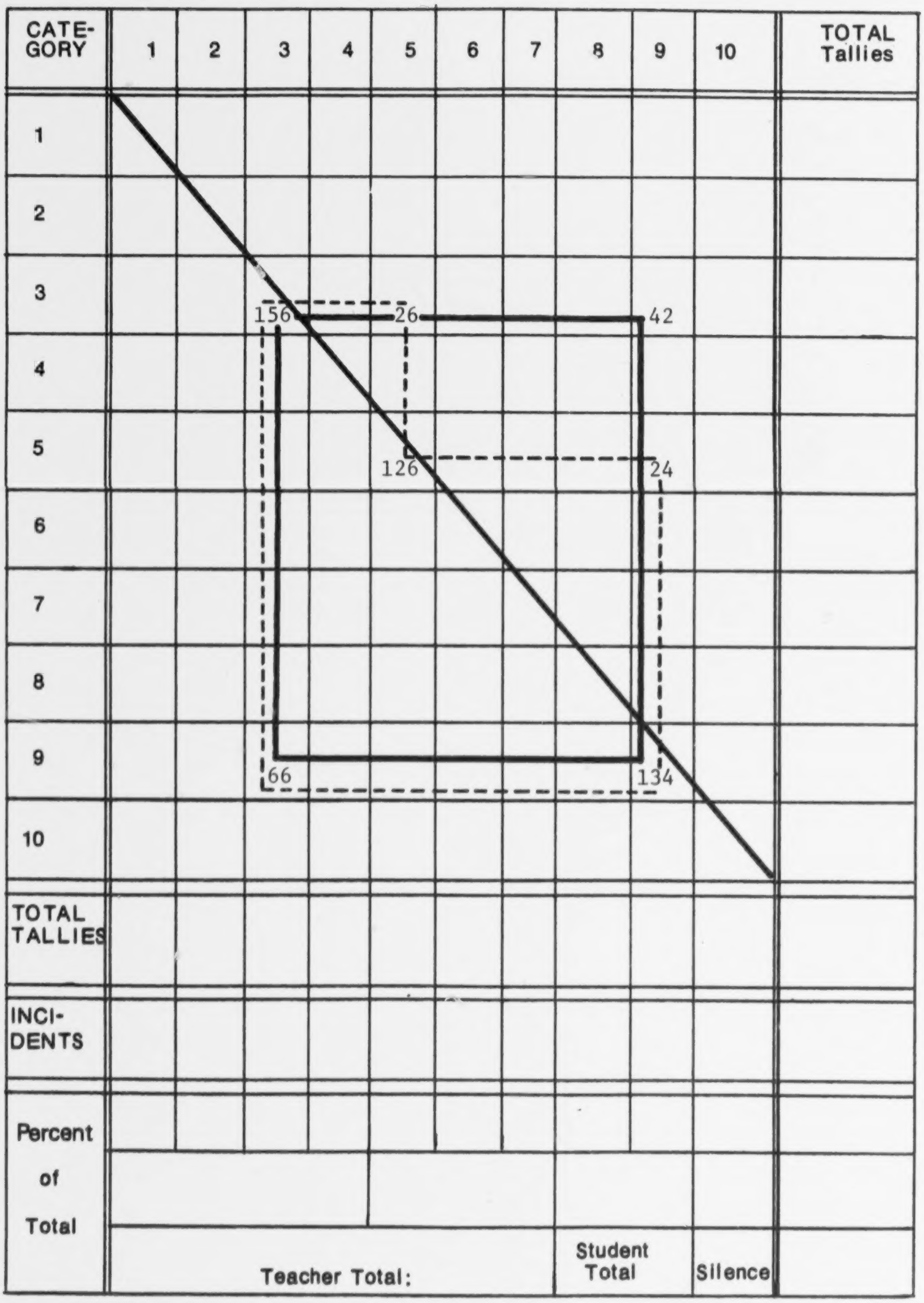
Activity 6c
TRANSPARENCY B-7

SECONDARY PATTERN


CATE-GORY
1
2
3
4
5
6
7
8
9
10
TOTAL Tallies
156
26
126
24
66
134
TOTAL TALLIES
INCI-DENTS
Percent of Total
Teacher Total:
Student Total
Silence

Activity 6c
TRANSPARENCY B-8

SUMMARY OF ALL
PATTERNS OF INFLUENCE


CATE-GORY
1
2
3
4
5
6
7
8
9
10
TOTAL Tallies
156
26
42
126
24
66
134
TOTAL TALLIES
INCI-DENTS
Percent of Total
Teacher Total:
Student Total
Silence

INTERIM ACTIVITIES

An essential part of the workshop is the continued involvement and practice with interaction analysis concepts and procedures which takes place between sessions. Participants should be given the following assignments:

1. Tally, transfer and analyze three classroom lessons. This can be accomplished either by observing someone else or by tape recording their own teaching.
2. Bring a transparency or ditto of at least one matrix to the next session.
3. Read the following parts of the Amidon and Hough text:

Section I	Chapters 2, 4, 6
Section II	Chapter 4 if research oriented
	Chapter 5, 7, 11 if elementary
	Chapters 8, 9, 10 if secondary
	Chapter 6 and Chapters 1, 2 of Section III if administrative
Section III	Chapters 4, 11 and 12

(A precaution should be given to those intending to tape their own lessons: The microphone should be placed close to the teacher as it is his talk which needs to be clear.)

The trainer should caution all participants against returning to their school or agency and instituting a "class" in interaction analysis. Emphasis should be given to building individual skills rather than telling others about the strategies.

Activity 7

SHOW AND TELL

Description

The participants will share their experiences and observations made between sessions.

Trainer Materials	Overhead Projector
Participant Materials	Matrices for Discussion (See Assignment No. 2, page 104)

Rationale

Between sessions, many participants have been actively involved in making observations and matrices of their teaching. Most will be highly motivated to share these experiences. In order to facilitate the sharing of this information, the participants should be assigned to small groups. If circumstances have prevented some participants from completing the assignments, considerable anxiety may be found.

Objectives

1. Each participant will share his experience and observations.
2. Each participant will review information and expose his misconceptions and differences concerning interaction analysis concepts.
3. Each participant will identify needs for further review and additional information.

Comments

1. While one purpose of this activity is to give the instructor several lists of concerns, he should resist the temptation to spend the next hour answering questions. The answers to the typical questions have been prepared into Activities 8 and 9. Only those questions which are perceived as basic to those activities should be dealt with now. This discussion should take thirty minutes.

PROCEDURES

1. Divide the participants into groups of six.
2. Have each of them show their matrices. Members of each small group should discuss the information on the matrices and interact with each other about the lessons.
3. Ask each group to list unresolved questions or problems on paper to be presented to the instructor for consideration during the two-day session.
4. Discuss those elements from the list which are basic to the success of Activities 8-9.

Activity 8

TALLYING

Description

The participants will review the entire procedure beginning with tallying.

Trainer Materials	TAPES: U-2 Incident, Episode 2 First Grade Mathematics, Episode 4 Flowers Discussion, Episode 7 Tape Recorder
Participant Materials	HANDOUT: Tally Sheets (Several Per Participant) HANDOUT: Flowers Discussion Typescript, page 111-115 HANDOUT: U-2 Incident Matrices, pages 44-46 HANDOUT: First Grade Mathematics Matrix, page 65

Rationale

By this time, it should be obvious that some individuals have done a considerable amount of homework. Others have done some and a few may have had difficulty arranging for any outside observations. As a result, some people need review to restore timing increase internal consistency or achieve a higher degree of external reliability. Therefore, it is necessary to review the entire process presented in the first session, starting with tallying. Even those who have done a great deal of homework will find some points they have overlooked.

Objectives

The objectives for the review sections are the same as those listed for each activity in Section I. In some instances the activities will serve as a check that the competency still exists, in others the process will improve timing, internal consistency or external reliability.

Objectives

1. The participants will record an observation of every interchange, at least every three seconds, on the Tally Sheet.
2. The participants will have internal consistency as the same material is repeated.
3. Participants will know a set of ground rules which will assist them with difficult distinctions and subtle discriminations. (See Amidon and Hough Text, pages 126-128.)
4. The participant will develop external reliability by comparing his observations with those of other participants and the completed matrices provided.
5. Further practice will cause participants to maintain consistency and reliability throughout extended observations for ten minutes longer.
6. Participants will have developed sufficient confidence to enable them to make independent observations during the period between Sessions II and III.

Comments

1. Individual differences of the participants, especially with regard to motivation, need to be considered. A few brief comments stating the agenda and need for a review may relieve this concern.
2. The instructor's concern should be focused only on seeing that each individual has had sufficient experience in tallying and making some of the more subtle distinctions. Complete mastery will come only with individual practice outside the workshop.

Comments

3. Flowers Discussion Typescript

This discussion was taped in a primary grade classroom of an Oregon elementary school. It was not staged nor studio produced. It was recorded in the classroom as school started one day. The first few seconds are difficult to hear and comprehend; the teacher is getting coats, milk and lunch money. About halfway through the discussion the teacher changes focus and style.

The episode is included in the package because:

a. It provides variety from the U-2 Incident and First Grade Mathematics Class

b. It illustrates usefulness of the system with a poor or nonsensical lesson

c. Categorical decisions are relatively easy; timing and interchanges are difficult

4. For those who have been slow in comprehending scheme of tallying, transcription and matrix interpretation, additional help may be given by assistant instructors or grouping with more advanced students.

5. If the group demonstrates a proficiency in tallying, introduce tallying into a matrix to avoid frustration. (See Activity 11, page 142.)

PROCEDURES

The instructor should program one hour for review of the tallying process. This hour should contain at least twenty minutes of tallying time from at least two taped lessons.

EXAMPLE:

1. Tally three minutes of the U-2 Incident
2. Small group consideration of questions and problems
   [This first tally usually brings to mind a series of questions which came up during the interim between sessions.]
   (Ten minutes)
3. Tally last eight to ten minutes of U-2 Incident
4. Small group consideration of questions and problems
   (Three to five minutes)
5. Instructor responds to unresolved problems
   (Three to five minutes)
6. Tally one minute of First Grade Mathematics Lesson
7. Small group consideration of pacing and interchange tallying
   (Five minutes)
8. Tally five minutes of First Grade Mathematics Lesson
9. Repeat Steps 4 and 5 above
   (Five minutes)
10. Tally last five minutes of the Flowers Discussion, Episode 7 of the Training Tape

Activity 8

FLOWERS DISCUSSION

Students enter classroom and take their seats.

T: Are you___going to leave your sweater on, Tammy, or are you going to take it off?___

S: Keep it on.___

T: Keep it on. Okay.___ Good.___ Okay, fine.___ Ah, we have the same people absent as___yesterday, don't we?___ Good. All right, how many people are going to take hot___lunch? Raise your hand. Hot lunch.___ (Pause)___ Okay, that's ten. How___many people are going to have milk? Raise your hand.___ Oh, good. Wes, wait just a minute.___ Are you having milk or hot lunch?

S: Milk.___

T: Milk?___ Okay.___ Fine. Twelve.___ What did you bring me?

S: Some flow--.___ Some flowers.

T: Where did you get them?

S: Over at our house.___

T: Over at your house. Do you know what these are?___ Can you name some of them for me?___ How about, ah - do you know what they are?___

S: Well, some of them.___

T: All right, how about this one? Who knows?___ All right, Kendall.

S: A daffodil.___

T: A daffodil.___ Good. All right, how about___ah, this one?___ All right, Bret.

S: It's___a boy and girl flower.

T: What is it?___

S: A___boy and girl flower.

T: Why do you___suppose they call it a boy and girl flower, Bret?___

S: Because it's two different colors.___

T: It's not all the same color, is it?___ All right, ah, how about this one right___here? What is it?___ Is it a wild flower, Tammy?

S: No.___

Activity 8

Flowers Discussion

T: No,___it's not. How do you know?___ (Pause) You don't know. How do you know, Jim, it's not a wild flower?___

S: It has a wooden stem.___

T: It has a wooden stem.___ What do you think it is? Can you tell me, Wes? What is it?___

S: It's a plum blossom___

T: It's off your plum tree?___

S: Yes.___

T: Good. Where would you find this... in a garden or___in the orchard or in the field?___ Where, Eddie, where?

S: In the orchard.___

T: In an orchard, of course, and pretty soon they're going to be nice,___ juicy what, Darryl?___

S: Plums.___

T: Plums, of course.___ Now we have two kinds of flowers here that are the___same thing, same name, but they are different___colors. Do you know what they are? David.___

S: Primrose.___

T: Do you know of any other colors that__ primroses come in?___ Jill?

S: White.___

T: White and___pink. Do they grow great big or just small?___

S: Small.___

T: Just small. This___... does anybody know what this is?___ Anybody know? Nobody? Do you know?___

S: No.___

T: I don't either. Is it a flower___or is it off a bush, do you think?

S: Off a bush.___

T: Why do you think so?___

S: Cause it has a wooden stem.___

T: It has___a wooden stem. Here's one. What's this?___

Flowers Discussion

S: A dogtooth.___ (Pause)

T: Dogtooth, what?___ (Long___pause___) What, Dinah?___

S: Dogtooth___violet.

T: Would you find this in your garden,___Dinah?

S: ___Yes...No.___

T: No. Where would you find it?___ Where would you find it, Richard?___

S: Out in the field.___

T: Out in___the fields, of course. This is a wild flower. Another plum branch___and one more wild flower.___ Who knows? Kathy, what?___

S: Spring Beauty.___

T: Didn't hear you.___

S: Spring Beauty.___

T: Spring Beauty.___ Then, this last thing, Darryl, what___is it?

S: For, for___(Pause)___for...

T: Almost. Who can say it?___ Jenny.

S: Forsythia.___

T: Forsythia. This is a flower or a bush or___wild flower? What is it? Greg.___

S: Ah, a bush.___

(Pause)

T: It's a bush.___ Very good.___ All right now, Wes, you should___have finished that at your seat, shouldn't you? All___right, today we already___read the story about Mr. Rain___maker. Listen right now, please. All right, you read___the story about Mr. Rainmaker___and I have___a page in the workbook I want you to do and it calls___for you to read; it asks you to read a sto___ry and then put the senten___ces in order. What happens first in the story, what___happens next? Todd, close your workbook until I'm finished, please.___ What happens first in the story?___ What happens next in the story and next,___ and next, and next? All right, will you o___pen your workbooks to page 60 please ___...page 60___. (Students open books and rustle pages). Now, this is the___story of the Giant and the Cherry Tree. Hold___it back so you're not disturbing your neighbor, please.___ (Papers rustling)

Activity 8

Flowers Discussion

T: Fold back the test.___ You can do that later.___ All right, this is the story___of Marty. Now, that's not fair!___ This is the story about___the Cherry, the Giant and the Cherry Tree. Kathy,___I asked you please not to read yet.___ This is the story about the___Giant and the Cherry Tree. I want you to read the story care___fully and then we'll put___the sentences at the bottom of the page in order___. Just read the story, Todd,___just the story and then fold your hands ___to show me that you are finished. All right, you may begin please. ___ ___Kathy, I think you can do all right at the table. You don't have___to sit back.

(Insert)

Almost finished,___aren't you, Todd?___ What did you say?___ Okay, fine. Now,___look down at the bottom.... Oh, Before I go on___, I saw some people, look this way, please, I saw some people reading, ___mouth going. Can you read___as fast with your mouth as you can with your eyes?

S: No.___

T: No. Can you read faster,___Wes? With your eyes only?

S: Yes.___ Yes.

T: Much faster. And that's what I want you to___practice doing. Only with your eyes.___ All right, now, can you look at the sentences down ___at the bottom and tell me what happens first.___ Who can find what sentence tells me what___happens first?___ Deedee, what do you think?

S: A cherry fell into___Jack's cart.

T: A cherry fell into Jack's cart.___ How many of you agree?___ Jim, don't you think so? Kathy,___what would you choose first?___ Would you choose the same___one? (Nods) All right, put a number one___ there, please.

S: I don't have my pencil.___

T: Deedee,___did you forget to bring your pencil?

S: Is this right? Is it right?

T: Yes,___that's the right one.

S: It's___a very small...

T: I'm sorry, you'll just have___to do it when you get back to your seat. Didn't I tell you___to bring your pencil?

S: Yes, but I couldn't write with it.___ It's so small.

Flowers Discussion

T: Well, you just, ah___, you can finish it when you go back to your seat. You can borrow Marty's___pencil. All right, what happens second?___ What happens second in the___story? What happens second? Todd,___are you looking for the right answer?___ Kathy?

S: Jack did something to help the Giant.___

T: Jack did something to help the Gi___ant. All right, what did he do Kathy?___

S: He pulled off___some of the, ah, stickers that was in his,___in his thumb.

T: In his thumb. All right, do you___all agree that that's a good answer?

S: What?___

T: Number two was Jack did something to help___the Giant, is that the second thing that happended? All right,___put it down please.

S: I know what the next one is.___

T: What's___the next one, Marty?

S: The kind___Giant picked fruit from,___fruit for Jack.

T: All right, read the___whole sentence again, please.

S: The kind___Giant picked fruit for Jack.

T: The kind___Giant picked fruit for Jack. Do you agree with that answer, Todd?___

S: Yes.___

T: Is that the next thing that happened?___ All right, put a number, what number are you going to put there Todd?___

S: A three.___

T: A three.___ All right, Angie, what are you going to choose as___the next thing that happened in this story?___ Which one of the two that are left?___ Wes, are you looking?

S: I know.___ Jack ate so much fruit that his mouth was red.___

T: Read it again and read it a lit___tle more clearly, Angie.___

S: Jack ate so much fruit that___...that, his mouth was red.

T: Jack___ate so much fruit that his mouth was red. Do you agree,___ Kathy?___

ANALYSIS

Description

The participants will review the method of analyzing the data on a matrix. They also will be provided practice in experimenting with different teaching styles.

Participant Materials	HANDOUT: American History Matrices I and II, pages 80-81
	HANDOUT: Tally Sheets
	HANDOUT: Role-Playing Matrix, page 120

Rationale

As with the review of tallying, we now face similar problems of differences between participant abilities in the review of matrix information. Involvement in the group process has proven the best procedure to follow. New material is introduced for focus on specific problems as well as for variety.

Objectives

1. The participants will know the meaning of tallies in any given cell.
2. The participants will understand the "before" and "after" sequence of events as depicted on a matrix.
3. The participants will identify patterns of verbal influence as depicted on a matrix.
4. Each participant will develop an effective modus operandi which is consistent with procedures for analyzing an interaction analysis matrix.

Comments

1. Review comments on American History Matrices, especially the material on pattern comparison, page 77.

Comments

2. Freedom of movement by the instructor is advantageous both to determine levels and differences of ability among the participants and to answer questions which may be impeding the review of the process.
3. Variety and spontaneity are important due to the review nature of the activity.
4. Large group sessions dominated by the instructor should not extend over five to ten minutes during any of the review sessions.
5. The Role-Playing Matrix, page 120, will be used several times during the workshop. The first time, in this activity, it is used to point out difficulties in matrix analysis, i.e., how to handle zero steady state cells in the pattern. The second time it is used in Activity 15 for review purposes and the third time in Activity 16b as the data source for a conference which participants will role play. A typescript of the first few minutes of the lesson (Eleventh Grade Social Studies, pages 187-188) is also available but should not be used until Activity 15. The lesson represented in the matrix was taught by a female intern in an eleventh grade U. S. history class. It can be understood best by reading and analyzing the accompanying typescript. The lesson has been included in the package because:
    a. Illustrated patterns are somewhat unusual, especially the 5-4-9-7-5 secondary pattern
    b. The primary pattern (5-4-8-3-5) demands the inclusion of two "zero" steady state cells (8-8 and 3-3)

Comments

NOTE: As stated in the optional film. "It makes no difference how many tallies, if any at all, are contained in a steady state cell. The SS cell is simply a pivot point." This matrix forces the participants to operationalize this concept.

c. It is useful as a data source for discussions on such topics as "What student behavior creates 8's that never last longer than three seconds?" "What teacher behavior would create 3's that never last longer than three seconds?"

PROCEDURES

1. Refer the participants to the American History Matrices.
2. Break into groups of six.
3. Designate (or ask for a volunteer) one person in each small group to lead a discussion reviewing all the information on Matrix I.
    a. Instruct the leader to ask specific questions about Matrix I that allow only "8" responses. Designate (or ask for a volunteer) one person to tally the session. The leader may add information of his own. (In effect this might be a 5-4-8-5 lesson.)
    b. After five minutes designate a new leader and a new tallier to conduct a lesson asking questions that lead to "9" responses. (For example, what other information is on the matrix that was not covered in the previous lesson?) In effect, this would be a 4-9-3-4 lesson.
    c. Have participants individually look at Matrix II with the instructions that a discussion will follow comparing the two American history lessons.
    d. Have a short, small group discussion of this comparison.
    e. In the large group, ask if the participants observed that although the basic pattern was the same in both matrices, the lessons were different.
4. Discuss one or two unresolved questions with the total group.
5. Refer the participants to the Role-Playing Matrix and repeat Steps 3a, 3b and 4 above.
6. This time, when discussing unresolved questions with the total group, raise the specific problem of tracing a pattern when the steady state cell is empty.

Activity 9

ROLE-PLAYING MATRIX

CATEGORY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**TOTAL Tallies**
1											
2											
3				6	16		9		6		37
4				27				30	23	8	88
5				32	59					5	96
6											
7				7	16		10		2	8	43
8			14	8			8			6	36
9			15				16		26	8	65
10			8	8	5			6	8		35
TOTAL TALLIES			37	88	96		43	36	65	35	400
INCIDENTS			37	61	37		33	36	39	35	
Percent of Total			9.25	22	24		10.75	9	16.25	8.75	
	31.25				34.75			25.25		8.75	
	Teacher Total: 66							**Student Total**		**Silence**	

Activity 10

MATRIX INTERPRETATION

Overview

This activity will extend from three to six hours depending on the time available, the response of the participants and the nature of the workshop. Since interpretative ability is vital to the professional use (as opposed to technical) of interaction analysis, this activity is quite important.

The initial experiences are designed to raise procedural questions that need to be answered. The activities are descriptive but as the groups improve, the experiences become more and more prescriptive and manipulative. For example, rather than relating what data is given, emphasis would move toward planning for change or elimination of specific verbal behaviors as show on sample matrices.

Activity 10a

MATRIX DESCRIPTION

Description

This activity provides practice and additional insights in matrix interpretation.

Trainer Materials	TRANSPARENCIES: Junior High Mathematics Matrices I and II, pages 127-128
	TRANSPARENCY: Alaskan Matrix, page 129
	Overhead Projector
Participant Materials	HANDOUTS: Junior High Mathematics Matrices I and II, page 127-128
	HANDOUT: Alaskan Matrix, page 129

Rationale

This activity is designed to confront the participants with a series of problems which inevitably will occur when they describe classroom lessons using matrix data.

Objectives

1. Participants will be able to compare matrices.
2. Participants will know where to start determining the patterns of influence on a matrix.
3. Participants will be able to interpret information on matrices that demonstrate no primary pattern of influence.
4. Participants will begin to develop an understanding of the varieties of classroom behaviors typified by the tallies in any given cell.

Comments

1. Matrices should be compared on the basis of incidents, percentages, patterns and specific cells. This important generalization should be derived from Activity 10a.

Comments

2. No comments are included on the Junior High Mathematics Matrices since such information is contained in the procedural remarks. The trainer should, however, be careful not to allow participants to form patterns where none exists in Matrix II. Patterns exist only as data permits and never without the presence of significant cells.

3. The Alaskan Matrix represents a third grade social studies lesson taught in an elementary school in the Matanuska Valley of Alaska. The female teacher was asking short, specific questions. These were then followed with "why" or "how" questions. Its primary purpose for inclusion is to force participants to consider "Where a pattern starts." (See Procedures 8 and 9)

PROCEDURES

1. Refer the participants to the Junior High Mathematics Matrices.
2. Have each small group analyze both matrices.

NOTE: If time is available, group members not previously participating might repeat the procedures suggested in Activity 9, Steps 3a and 3b, page 119. (Ten to fifteen minutes)

3. Set the stage by relating the following information to the participants.

> "The lessons described on these matrices were taught by a young, male first-year teacher. The students in each class are eighth graders of average achievement and ability. The lessons deal with the introduction of signed numbers. Both classes met after lunch but neither class met the last period of the day.
>
> "In the lesson described in Matrix I, let us assume the teacher was able to meet his objectives, while in the other matrix, student behavior problems prevented him from doing so. The problem is: Is there something the teacher does differently in one matrix as compared to the other that causes his difficulty? Please assume the difference in Columns 6 and 7 are the result, not the trouble."

4. Instruct each small group to compare the two matrices to see if there are differences which would help the teacher solve his dilemma.

Procedures

5. After ten or fifteen minutes of discussion, expose the hidden agenda to the large group, that is, "Our basic concern is how to compare the two matrices." Using the overhead projector, draw the sources of comparative data from the group. When finished appropriately the transparency will look like this:

Incidents		Categories	Percentages	
Matrix I	Matrix II		Matrix I	Matrix II
2	2	-2-	.4	.5
26	26	-3-	11	9.5
38	10	-4-	14	3.25
33	29	-5-	47	45
2	9	-6-	1.4	3
3	19	-7-	.6	7
35	15	-8-	10	4
11	24	-9-	3.1	8.5
21	22	-10-	11.5	19.25

Patterns

Matrix I	Matrix II
5-4-8-3	5-9-3

Significant Cells

3-3	3-3
4-4	5-5
4-8	5-9
5-4	7-7
5-5	7-10
5-10	8-3
8-3	9-9
8-8	10-10
10-5	
10-10	

Procedures

6. One conclusion, but not the only available, to help the teacher would be, "He needs to ask more questions which result in '8' answers." (Fifteen to twenty minutes)
7. Refer the participants to the Alaskan Matrix. Ask each small group to analyze it. See the NOTE in Step 2, page 124. (Ten minutes)
8. As the small group activity is in process, ask the groups to consider the question, "Where is the most appropriate place to begin the primary pattern?"
9. The conclusion reached in the large group discussion which follows should be:

> It really makes no difference, but usually start in one of two places:
>
> a. The largest steady state on the teacher's side of the matrix
>
> b. The steady state of the most numerous category on the teacher's side of the matrix

Quite often these two are the same cell; this matrix is an exception and was included for that reason.

Activity 10a

JUNIOR HIGH MATHEMATICS MATRIX I

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2					2						2
3			30	9	7			5	3	2	56
4			2	34	7			26	1	2	72
5				14	200	2		2	4	11	233
6						5				2	7
7			1					2			3
8		2	17	8	4		2	13		2	48
9			6		2		1		5	2	16
10				7	11				3	36	57
TOTAL TALLIES		2	56	72	233	7	3	48	16	57	494
INCIDENTS		2	26	38	33	2	3	35	11	21	
Percent of Total		.4	11	14	47	1.4	.6	10	3.1	11.5	
	25.4				49			13.1		11.5	
	Teacher Total: 74.4							**Student Total**		**Silence**	

Transparency/Handout

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JUNIOR HIGH MATHEMATICS MATRIX II

CATE-GORY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**TOTAL Tallies**
1											
2			2								2
3			12	3	8	2	2	2	5	4	38
4				3				8	2		13
5				5	150	3	7		10	4	179
6					2	3	3		4		12
7					4		12	5		10	31
8			12		3						15
9		2	8		6	4			10	4	34
10			4	2	6		7		3	55	77
TOTAL TALLIES		2	38	13	179	12	31	15	34	77	401
INCI-DENTS		2	26	10	29	9	19	15	24	22	
Percent of Total		.5	9.5	3.25	45	3	7	4	8.5	19.25	
	13.25				55			12.5		19.25	
	Teacher Total: 68							**Student Total**		**Silence**	

Activity 10a

ALASKAN MATRIX

CATEGORY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**TOTAL Tallies**
1											
2		2	2	12		4			8		28
3		2	4	10	2				6		24
4					2			22	22	4	50
5					12				4	2	18
6									10	4	14
7											
8		10	6	8						2	26
9		14	12	16	2	6			164	4	218
10				4		4		4	4	10	26
TOTAL TALLIES		28	24	50	18	14		26	218	26	404
INCIDENTS		26	20	50	6	14		26	54	16	
Percent of Total		7	6	12.5	4.5	3.5		6.5	53.5	6.5	
	25.5				8.0			60.0		6.5	
	Teacher Total: 33.5							**Student Total**		**Silence**	

Activity 10b

MATRIX PRESCRIPTION

Description

This activity will provide additional practice in matrix interpretation. It will also focus on the use of the matrix in lesson planning.

Trainer Materials	TRANSPARENCY: Finished Matrix, page 74 TRANSPARENCY: Senior High Mathematics Matrix I, page 133 TRANSPARENCY: Senior High Mathematics Matrix II, page 134 Overhead Projector and Pen
Participant Materials	HANDOUT: Senior High Mathematics Matrix I, page 133 HANDOUT: Senior High Mathematics Matrix II, page 134

Rationale

Teachers have found systems of interaction analysis useful in lesson planning. The purpose of this set of activities is to demonstrate how the matrix might be used in planning a lesson, and, consequently. how the finished lesson might be compared with the predicted matrix. Many teachers merely react in the classroom rather than predict the effect of planned verbal behavior responses. This objective analysis of preplanned activity should be helpful for many participants.

Objectives

1. Participants will be able to transfer lesson plans into verbal behavior patterns and designate cells on the matrix which will be descriptive of these responses.

Objectives

2. Participants will plan lessons using a matrix.
3. Participants will compare actual classroom observation matrices with the preplanned matrix.

Comments

The lessons portrayed on the Senior High Mathematics Matrices were taught by a young, female teacher in an Oregon high school. The students were slow twelfth graders who had previously failed Algebra. The class was considering "making change" in a commercial establishment. Appropriately, these lessons were recorded on April Fool's Day.

Supervisors had been working with this teacher for six months trying to convince her that she was not teaching via the discovery method. Interaction analysis was the system that finally enabled them to "break the ice" and begin to effect a change.

Discovery, as she defined it, had significant cell loadings in 5-5, 5-4, 4-4, 4-8, 4-10, 8-3, 3-3, 3-4, 3-9, 9-9, 5-9, 10-9.

When participants outline a discovery lesson, accept whatever information is given. Avoid being sidetracked into a discussion of what is "discovery." If the outline becomes lengthy or too complex, ask the participant to condense it to designate the key characteristics.

For several individual reasons, not all of which are germane to this discussion, most participants will accept the teacher's first attempt as unsuccessful. When the second attempt (Matrix II) is analyzed, some progress should be noted, but total success was not achieved. This leads to the observation, "Rome was not built in a day."

PROCEDURES

1. Designate a math teacher to indicate where the tallies should be concentrated and what the major pattern of responses should be if a discovery math lesson were to be taught.
2. Using a blank matrix and the overhead projector, place an "X" in those cells on the matrix where tallies would be concentrated as suggested in Step 1. Ask the teacher to verify the resulting pattern as an accurate description of a discovery lesson in mathematics.
3. Keep the matrix on the overhead projector.
4. Refer the group to the Senior High Mathematics Matrices. Inform them the teacher claimed to have been teaching by discovery in Matrix I. Question--Was she successful? (Five minutes)
5. Break into groups for discussion of the participants' analysis. (Five minutes)
6. Hold a brief review of opinions in the large group. What information was most helpful in looking at this matrix?
7. Inform the group that the teacher was convinced she was not successful after seeing Matrix I. Then she planned and tried another lesson, Matrix II. Was this attempt successful? (Five minutes)
8. Break into groups and discuss Matrix II. Did she make progress? What information was helpful?
9. In the large group briefly discuss the value of planning, multiple observation and sequences over a period of time.
10. In reference to these two math lessons, it should be noted also that pattern designation was of little value.

SENIOR HIGH MATHEMATICS MATRIX I

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2		5	1						1		7
3			31	5	3		1	10	6	1	57
4				15	3			10	4	3	35
5				5	125		1	5	5	1	142
6											
7			1				1			1	3
8			11	7	7			12		2	39
9		1	12		1				21	2	37
10		1	1	3	3			2		22	32
TOTAL TALLIES		7	57	35	142		3	39	37	32	352
INCIDENTS		2	26	20	17		2	28	16	10	
Percent of Total		2	16	10	40		1	11.2	10.8	9	
	28				41			22		9	
	Teacher Total: 69							Student Total		Silence	

SENIOR HIGH MATHEMATICS MATRIX II

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2				2	1						3
3			15	8	5			3	7	4	42
4				9	4		1	21	4		39
5				9	84	1		1	7	3	105
6						1				1	2
7								1			1
8			11	5	2			19	1	8	46
9		3	14	2	5				42	2	68
10			2	4	4			1	7	46	64
TOTAL TALLIES		3	42	39	105	2	1	46	68	64	370
INCIDENTS		3	27	30	21	1	1	27	27	18	
Percent of Total		.8	11.6	10.7	28.9	5	.2	12.6	19	16.7	
	23.1				29.6			31.6		16.7	
	Teacher Total: 52.7							Student Total		Silence	

Activity 10c

VARIATION

Description

This activity will provide additional practice and insight regarding matrix interpretation. The participants will also practice communication of results to other professionals.

Trainer Materials	TRANSPARENCY: Social Studies Matrix I, page 94 TRANSPARENCY: Video Matrix, page 138 Overhead Projector
Participant Materials	HANDOUT: Social Studies Matrix I, page 94 HANDOUT: Social Studies Matrix II, page 95 HANDOUT: Video Matrix, page 138 HANDOUT: Video Typescript and Chart, pages 139-141

Rationale

This activity is designed to extend the experience of the participants in the analysis and interpretation of matrices. No new concepts or procedures are introduced.

Objectives

1. Participants will identify misconceptions and inaccurate procedures and find ways to alleviate them.
2. Participants will begin to develop the ability to communicate interaction analysis data to other professionals.

Comments

1. Refer again to the Comments, page 92, on Social Studies Matrices I and II, pages 94 and 95.
2. The Video Matrix and Video Typescript represent a discussion conducted in the fifth grade of an Oregon elementary school. The topic was a comparison of class and occupation in Colonial Mexico. Some of the verbatim typescript and a copy of the chart the children were discussing are included in the handout materials.

PROCEDURES

1. Refer participants to the Social Studies Matrices.

    a. Have participants analyze Matrix I individually and in small groups (Five to ten minutes each)

    b. Structure small group discussions as specified in Activity 9, Procedures 3a and 3b, page 119

    c. Instruct the small groups to compare the two teaching styles shown by the matrices

2. Refer participants to Video Matrix.

    a. Have the participants individually analyze the matrix (Five to ten minutes)

3. Instruct the participants to pair off within their small group.

    a. Hold a conference duplicating one which a teacher and an observer might have following this lesson (Twenty minutes)

    b. Have one person play the role of the observer

    c. Have another play the role of the teacher who taught the lesson

4. Ask the participants to return to their small groups and discuss their success and failure in communicating interaction analysis data to each other.

Activity 10c

VIDEO MATRIX

CATEGORY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**TOTAL Tallies**
1											
2		1		1					8		10
3			12	7	1	2			5		27
4		2		31	1			5	23	3	65
5			1	1	12	2			2		18
6		1		2	1	3					7
7											
8			2		1			6	1	1	11
9		5	12	21	1				210	3	252
10		1		2	1				3	1	8
TOTAL TALLIES		10	27	65	18	7		11	252	8	398
INCIDENTS		9	15	34	6	4		5	42	7	
Percent of Total		2.5	6.8	16.4	4.5	1.8		2.8	63.2	2	
	25.7				6.3			66		2	
	Teacher Total: 32							**Student Total**		**Silence**	

VIDEO TYPESCRIPT

T: Well, what kind of, can you think of any reason that this might have been decided this way?

Marty: Maybe they didn't want any of the non-Spanish guys in the government, for they might...something like that.

T: Carl, Oh pardon me, Marty, I'm sorry.

Marty: They might goof it up or something. They might make laws that the Spanish don't like.

T: Well, this is a possibility for sure. Carl?

Carl: And if the ones that were born in the new world...since they could just hold land in the beginning and improve it, they did start, but if the Spaniards let them hold land and stuff, they'd probably have taken over the slaves, the slaves that were there, and the slaves would kill the master and get around alot faster.

T: What makes you think they might do this?

Carl: Well, if they really wanted to, they could really have slaughtered them. They could have took their guns and started, and could have killed a bunch of guys and taken anything they wanted.

T: We see they must not have in here. I hope we can...oh, Rosie, go ahead.

Rosie: What Bobbie said about the Spanish being full-blooded also, the mestizos were part Indian and part Spanish. Well, they didn't have too much of a choice, because the Indians didn't want them and the Spanish didn't and the people that were Spanish but they weren't born on Spanish land...well, one reason they might not have been able to go into the government is because, well, maybe the Spanish didn't like their way of doing things or the Indians didn't.

T: Could be. Bob.

Bob: I think that they sent the Spanish over because he thought, he probably thought, if he sent a man he already knew over there, he'd probably be the best and he wouldn't even try to rebel against his own king or try to let anybody do it, and he'd probably be a little bit more, he'd probably be a little bit more greedy for Spanish than the people over here already would, and if the people over here got their own leader, he probably thought pretty soon they'd feel more liberty and finally they'd rebel against Spain.

T: And what would the result of that be?

Video Typescript

Bob: Well, there'd probably have been a war over here and they would have, I don't know, since we won the revolution, they might have won.

T: Rick.

Rick: Well, if the Spanish would let some other people come in and have the government, they could change the ways of living and they wouldn't let, like they'd have Spanish for slaves or something like that instead of Negroes and Indians and stuff like that. The Spanish wouldn't really like that.

T: Lee, do you have something to add, or do you agree?

Activity 10c

VIDEO CHART

LIFE IN OR NEAR THE CITY

JOBS	WHO DID THEM
1. Government Jobs	SPANISH
2. Religious Work	SPANISH PRIESTS
3. Merchants (Land and Mine Owners)	CREOLE
4. Hired Workers a. Salesmen - shops or streets b. Builders - homes and churches c. Servants - homes	MESTIZOS
5. Hired for Hard Labor a. Building roads b. Mining, digging c. Loading ships	INDIANS
6. Slaves for Hard Labor (Mainly on sugar plantations)	NEGROES

Activity 11

TALLYING INTO THE MATRIX

Description

The participants will learn to record tallies into the matrix. The procedure will be explored and practice provided.

Trainer Materials	TRANSPARENCY: Working Matrix, page 73 TRANSPARENCIES: Set C, pages 146-148 TAPE: U-2 Incident, Episode 2 TAPE: Typing, Episode 5 Overhead Projector and Tape Recorder
Participant Materials	HANDOUT: Tally Sheet, page 36 (Several Per Participant) HANDOUT: Record Sheet, page 53 HANDOUT: Typing Episode Typescript, pages 149-155

Rationale

One general reaction participants will bring to the second session is a concern for the time it takes to transfer tallies from the Tally Sheet into the Finished Matrix. This time can be avoided by training the observer to make his tally directly into the matrix. The purpose of this activity is to demonstrate the technique and provide practice for the participant.

Objectives

1. Participants will be able to tally directly into a matrix during a brief, slow-moving observation.
2. Participants will identify their own areas of difficulty in this process.
3. Participants will see the advantage of this process and will be motivated to practice it between the two sessions.

Comments

1. The first or second time participants use this procedure with a tape they may react verbally when they reach a point of frustration. Instruct the participants to stop QUIETLY at this point until they have reoriented themselves, then to continue.
2. Avoid the use of the First Grade Mathematics and Flowers Discussion tapes until Activity 17 or until confidence is at a high level.
3. The Typing Episode is a recording of a senior high typing class during the discussion of the rules and procedures involved in typing a reference paper. The lesson is paced quite slow and is rather uninteresting. It is, however, useful when participants are learning to tally directly into the matrix. Teacher talk is slow, repetitive in categories, and deliberate. Student talk is both 8 and 9 to provide practice with quick interchanges (a few) and with extended student discussion. Do not overuse this episode.
4. Transparency Set C is a collection of three transparencies for use in Activity 11 and in supplemental review of tallying into the matrix which may take place in Activities 14 or 17. It is a reproduction of the tallies a participant should make in Activity 11: Procedures 4 and 7 (C-1), Procedures 5 and 8 (C-2), and Procedures 6 and 9 (C-3).

PROCEDURES

1. Have participants detach multiple copies of the Working Matrix. Use the Working Matrix Transparency to aid in the review.

2. Review the matrix ground rules:

    a. Only the steady state cells can receive more than one tally in sequence--the steady state cells are outlined for this purpose

    b. The other ninety cells can never receive two tallies in a row

    c. After a tally is made in a steady state cell the tallier moves horizontally

    d. After a tally is made in any cell other than a steady state, the tallier moves vertically

    e. In any pair of tallies the first number indicates the row and the second indicates the column--the second also indicates the next row. Thus, when a tally is made the next row is known automatically

3. The following procedures for tallying into the matrix are based on the above ground rules.

    a. All observations start in row ten due to the use of "10's" to start and end an observation

    b. As a lesson starts, a tally is made in the appropriate column at row ten

    c. The tallier then moves to the steady state of the corresponding column because the next tally will be somewhere in the row of that number

    d. If the category is continued, tallies are made in the steady state. If, however, another category is to be used, the tallier moves to the appropriate column and makes a tally

    e. Repeat Step 3c above

    f. Repeat Step 3d as applicable; continue tallying the lesson

Procedures

NOTE: Since more than half the tallies in an "average" matrix are in the steady state cells this process is far more traumatic than difficult. It becomes extremely difficult in a class with rapid interchanges. Avoid the use of First Grade Mathematics and Flowers Discussion tapes at this time.

4. Begin the process by reading the first 40 tallies on the Record Sheet at a two or three second pace. (Slow down for quick interchanges and speed up during the steady state tallies.) Discuss and review the procedure when completed.
5. Repeat Step 4 using the next 40 tallies on the Record Sheet.
6. Repeat Step 4 using the third group of 40 tallies on the Record Sheet.
7. After again reviewing the procedure, repeat Step 4 with the participants recording from the U-2 Incident tape. Stop the tape at exactly 40 tallies. Discuss differences between this observation and the first 40 tallies on the Record Sheet.
8. Repeat Step 7 by using the second 40 tallies of the U-2 Incident tape; compare with those corresponding tallies on the Record Sheet.
9. Repeat Step 7 using the third 40 tallies of the U-2 Incident tape. Again, compare them with those on the Record Sheet.
10. As time permits use other portions of the U-2 Incident or the Typing tape for continued practice with this procedure.

Activity 11
TRANSPARENCY C-1

U-2 WORKING MATRIX A
FIRST FORTY TALLIES

1										
2	2									
3		6 3	1	2				1		10
4			4				1			1
5		2		2 5						4
6					6					
7						7				
8							8	1		1
9		1						18 9	2	21
10		1						1	1 10	3
		10	1	4			1	21	3	

Activity 11
TRANSPARENCY C-2

U-2 WORKING MATRIX B
SECOND FORTY TALLIES

1										
2	2							4		4
3		3	1					1		2
4			4				1	1		2
5				5						
6					6					
7						7				
8		1					1 8			2
9	4	1	1					18 9	2	26
10								2	1 10	3
	4	2	2				2	26	3	

Activity 11
TRANSPARENCY C-3

U-2 WORKING MATRIX C
THIRD FORTY TALLIES

1										
2	2	1	1				1			3
3	1	1 3	1					1		4
4			2 4					3		5
5				5						
6					6					
7						7				
8							2 8	1		3
9	2	2	1					18 9	1	24
10								1	10	1
	2	4	5				3	24	1	

Activity 11

TYPING EPISODE TYPESCRIPT

T: About your project that you're work___ing on, the reference paper. I was___noticing yesterday___that most of you are doing an excellent job___but there are a few things that___I think we are somewhat confused a___bout. And first of all___, I'm thinking in terms of the difference be___tween a listing and a tabula___tion. Now, you recall that___on one of the earlier papers that we did___that we said that there were three things___that were always single-spaced___to make them stand out in a reference paper:___a long quota___tion if it's over four or five lines,___a listing, and a tabula___tion. Now, in this paper that we're___doing, we have no long quotation___but we do have a listing and we do have tabulation.___ On your worksheets___ as you have worked from,___the first thing that you find is a list___ing. What is the difference___between a listing and a tabulation?___Lynn.

S: A listing could be either ten___spaces in or else it can be centered vertically___and a tabulation has___to be centered vertically and then___single-spaced like you___make out the longest line and then ___count six spaces in between. You don't do that on a___listing and there are two columns in a tabulation.___

T: That, that's what we're after.___ Remember that in a___listing is just a listing of materials___and usually it is in sentence form and all___we're trying to do is to get it down on pa___per so that it stands out from___the body of the report. But in a tabulation___ you're trying to cut down on the number of___words so that you put it in a___table form and it will always have more than one___column and we do type___them in different ways. Now, they mentioned___two different ways that we could type___a listing. We can___indent ten spaces in and this is the easiest.___ Or else we can___group center a listing.___ What do we mean by group center?___ How do you group center something?___ (Pause) ___ Beth.___

S: Ah, center it___vertically and horizontally, the whole group___of whatever you're going to put down.

T: Well, not vertically,___now, vertically we mean up and down, don't we? But we do cen___ter horizontally by doing what?___ Chuck.___

S: Using the long line, line as a longest line and then backspacing___ for the left margin.

T: Yes, you, you take,___you look at your listing and you see, well, this is about___the longest line and so___instead of centering each individual item in the listing,___which would take too much time horizontally,___then we look at the longest line and say well we're going___to backspace center this. And so you do,___and once you you have backspaced centered,___what should you do?___ (Pause) Beth.

S: Ah, fix your___left margin.

Typing Episode

T: Yes, or in this case, prob___ably in a reference paper, you'd set a test, wouldn't you, in place of the left margin___and then you just begin typing at that point.___Now, sometimes, it's dif___ficult to decide which, which should you use?___ Do you indent ten spaces or do you group center___and this is the decision you have to make.___ If the lines are rather long, it's___usually better just to indent ten spaces in.___ But, if they're rather short, then you___might want to group center.___ Although some people say, well, whatever you start out with, be___consistent and make sure that it stays___ exactly the same throughout the paper. But, sometimes___it will vary, if you have very short items.___ Now, do we have any tabu___lations in this reference paper?___ In other words, a table do we have___a table? Bob.

S: Yes, just about on the first___page. (Papers rustling)

T: Yes, just about on the first___or second page. On the first page of your worksheet___you have___a table, it's___not a listing, it's a table.___ And this is what I noticed on some of your papers that people were___taking a two-column table___and attempting to arrange it just like they would a, a list.___ But we don't do___it the same way.___ Now thinking way back to the beginning of the year,___how do you set up a two___ column table? (Pause) Bob___by.

S: Take the two longest,___no, the longest word from each column and___ backspace for every two letters___at your left margin and then you ___fix space for each of the columns, you space in to the___right for the first column and then fix ten spaces___to the tab.

T: Okay. What___do you call the longest item in each column? What do we call it?___David.

S: Key line.___

T: A key line. Do we ever type the key line?___ Is the key line ever typed___, really? Chuck.___

S: Well, it could be if it, ah, came through that way.___

T: Well, it could be, probably unlike___ly isn't it, but it could be, if ___what, if what, Pat?___ Paul?___

S: If the two longest words from the same group.

T: Yes, if the two, if the longest i___tem in your first column and the longest item in your sec___ond column happened to be at the same___ place, horizontally in the table, it could work___out that way. How did your table work___out that you're going to be typing on this reference___paper?___ Is the longest item in column one, is___it horizontally equal to the longest item___in column two?

S: ____________________No.

Typing Episode

T: No,___no. All right.___ So what would our key___line be for this particular case?___ Barb.

S: Well, ah, that word in, ah,___ I don't know how to pronounce it. (Students laughing)

T: You mean you don't know Hawaiian?___ K - A - H -___KAHOOLAWE. This is a lit___tle tiny island. People, they say that it is an inhabi___ted island but it really isn't, is it? It's a, it's nothing more than a target range. There are a few wild goats___ there but that's all. (Students___are laughing.) It's, ah, you wouldn't want to live there, I don't think,___among all the shells. But at any___rate, it, is a small island and it's got___ a long name and in this case, it becomes part___of our key line. All right, so___Kahoolawe and what?

S: 4,___030.

T: 4,030,___representing square miles, of course, and the___longest item in column two. And then,___normally, we want to leave or have in___a blank space in between the column just___to make it easier to read.___ All right, so we plan our key line,___what do we do from that point?___ What are we going to do___with the key line once we've got it all figured out Ken?___

S: Backspace, center.

T: Backspace, center___from where?

S: You, you do the whole line,___but you do every two.

T: ___From where? Gary.

S: 50.

T: From 50 which is___the center point of our paper. And then as Ken ___pointed out, you backspace,___center once for each two letters. What do you do at___that point?___ (Pause) Do we just stop?___ Paul.

S: Make our left margin.___ Set it.

T: All right, we set a left margin.___ What would we do in a reference paper,___though, when we already have our margin set up?___ (Pause) Liz.

S: Put a tab stop.___

T: We would put a tab stop. Now, normally we would___put a, our left margin there, wouldn't we,___but in this case we would put a tab stop___and then proceed to do what?___ Where would we go from there?___ (Pause) Chris.

Typing Episode

S: Space over___the first column and then six spaces, two spaces to the tab stop___to where the second column starts.

T: All right, that second tab___stop then is going to, will tell us where to begin each item___in column number two or is___it?___ We space across and set that second tab___to tell us where to begin column number two.___ But does that tell us___where to begin each item in column two___in this particular table?___ Beth.

S: No, because the numbers may not be all the___same and our right margin has to be, ah, even.___

T: Ah, we have numbers in our second column, don't___we, and why does this make a difference?___ Why couldn't we just do it___just like a regular table? (Pause) ___ Paul.

S: Because 4___,030, that has four numbers in___it, and 45 has only two, and you, so you have to___make ah, go in two___spa, two or three spaces, carrying the column___so that the right margins are lined up.___

T: Why, why do we have to have the right margin lined up?___ What is important about this? Why do we insist on___this with numbers?___ (Pause) Janice.

S: For example, like if you have___45 in the center and you put 45 or when 45 might not be there or___it might look like 4,500.

T: ___Yes, it would be very easy, then, wouldn't it, to___get our numbers confused and___it's just like in math when you want to line up the dec___imal points. You don't put down $5.00___and then put down $.50___and start it right against with the 5, directly under ___each other, because it will be too confusing.___ And, we do the same thing on a tabula___tion. Let's assume that we are,___ we have our paper in the machine___and we're ready to type. Are we ready to go now?___ Is there anything else that has to be done? Larry.___

S: Heading.

T: A heading.___ Do we always have a title on a ta___ble?

S: Yes.

T: Always? Sue.

S: No, if it's underneath the paper___line in...

T: Not necessarily. Most of the time we would___but in this particular case we don't.___ Why don't you think we do?___ Why would it be necessary to have___a title on this particular tabulation?___ Claudia.

Typing Episode

S: Because in our lesson,___that, that we are talking about, it tells us what it is about.___

T: Yes, in the actual body of the report, we're___identifying what this table is going to be___so in this case, it really isn't necessary___that we include, in addition,___a title. Now how about the place___ment of this table?___ We said that we are going to single-space it to make it stand___out away from the rest of the___body of the report.___ But are there any special things that we should re___member about spacing?___ Paul.

S: We should, we should double space___before and after the___ tabulation.

T: Double space be___fore and after. Now, isn't this nor___mally what we do before this?___ Is it the same?___ (Pause) Jan.

S: Triple space before___before___and double space after.

T: Tri___ple space before and double space after. Now,___ where do we do that? __ Rick.

S: In an album.

T: In an album.___ Right, but in a table? Gary.___

S: Single space before and double space after.___ ___ ___ (Students laugh)

T: Now, think about that.___ Single space before and double space after.___ Would you like to revise your___answer?___ (Pause) Scott.

S: A half inch be___fore and half inch after.

T: Yes, normally,___now normally, that's just another way___of saying that this is the way we're supposed to do it un___til a more acceptable way comes along. But nor___mally, a half inch of blank space before and___a half inch of blank space after and this is, a___gain, to make it stand out very clearly and there___is not confusion as to exactly where this table begins___and ends. But we have an exception.___ On our reference paper that we're doing, most of___ you now will find that this will be right at the bot___tom of the page. Then___we have to have___room for our table___and then we get back to what Gary was just mentioning.___ What did you say, again now, Gary? What was your state___ment?

S: Ah, instead of six spaces,___I had five.___ ___ (Students laugh)

T: No, the, when you said before.___ That was really my question, that you asked me___, ah, before. But, ah, what I was really thinking ___when you said single spacing and double spacing.___ If you said it's after, if your table___is at the bottom of the page___and you're ready to type a foot___note, how many spaces do you come back?___ Don.

Activity 11

Typing Episode

S: One and then two af___ter.

T: One single spacing and then you type___your lines to separate the body from___the footnote and then double space.___ So in this particular case that we're going to be using this ta___ble in, with this paper. Then, this___is exactly what we'll do. We'll single, then ___double. It's an exception to the rule.___ Now is there any___thing else that you have to do with the table?___ Instead of having___seven or eight items, if you're going to have this one.___ Let's assume that this table is going to be___thirty items in length.___ Would you double space the table then?___ Tim.___

S: You would single space it and double space it after every line.

T: Yes, ah, actually there is no set amount, but normally you would, ah....What do we call that when we space after every line? What do we call that___Chris.

S: Breaking the table.

T: Yes, breaking the table. We break___the table by five or six items ___ to make it easier to read. But we would___still not double space the table___unless we had it as a separate page___in the paper because again we want it to stand out very clearly.___ So we have listing___and we have tabu___lations and they are arranged differently ___in the reference paper.___ Now, in this particular paper, there are no long___quotations so we will not___have to be concerned about that but you should___remember that you can indent five___spaces in and single space a long quotation___and leave off the quotation marks. If it's___short, what do we do with the quotation?___ Anyone recall? How___do we show a direct quotation if it's very short___in the body of a report?___ Claudia.

S: Just double space, double___space it and include it as part of the body,___ just enclosing it and quotation marks.___

T: There's one other thing___that I wanted to mention. Yes, Chuck.

S: ___Well on the, when you write a short quotation in like that, does the___number that refers to the, ah, you know where,___ you got, well, should that go on the outside of the quotation marks___on....

T: It should go outside___outside. Ah, in fact, this is true___that some people, too, in,___ when they were indicating a footnote would ___indicate a footnote before the quo___tation marks.___ Joan says, ___"we should eat an apple every day."___ Well, some people were putting the, the footnote___after "Joan says" and then putting the superi___or number to indicate the footnote___before the quotation marks, and before the___quotation itself. And it should always come after___and this gets___into the second point.___ And that is that some people got the___idea that it doesn't make___any difference what page we put the___footnote on as long as we get it down.___ But

Activity 11

Typing Episode

T: remember if you have a___page of a body of your report and you have ___a superior number, raised number, indicating that___there is a footnote,___then that footnote has to go at the bottom of___that page. You can't carry it over to the next page___and say, "Well, gee, I'm sorry I just ran out of room___and so I'll just put it on the next page,"___ because this isn't fair to the reader. The rea___der of this report, when you see, if he sees___an indication of a footnote, he is going___to look at the foot of the page___and see, expect to find a notation___indicating where that information came from.___ Donna.

S: Ah, if you're typing a para___graph or something, ah, and you see that___you're not going to have enough room should you stop in the middle of the___paragraph and put a footnote?___

T: Should you stop in the middle of the paragraph___and put...

S: ...put a footnote underneath it, put, your, a line underneath___ that and then put your footnote underneath that at the bottom of the page?

T: Yes,___ yes, ah, I think that one thing you're___referring to is the fact that___if you, it would be very nice if we could___end every page___at the end of a paragraph. This would___be perfect but it just doesn't work that___way. Sometimes we have to start a sentence ___and then we have to continue the rest of the sentence on to another page.___ This is perfectly all right with two excep___tions: one of them is,___of course, and you should recall this, never___ divide the last word on the page.___ Is there, are there any questions about this placement of foot___notes? Now this is important because there___were quite a few___that tried to carry the footnotes over___and, in fact, there were a couple who tried to___start numbering the footnotes over at___the end of each page. And___this is not, ah, un___common, but you don't. You make them in consec___utive order throughout your page, unless___by any chance, you were writing a very, very long___paper and it had _ chapters and, in that case, then you would.... (Bell rings) Ah,___ we'll stop at that point so if you'll center and___cover your machines. (Students cover machines) (___ ___) And we will continue with our project to___morrow. Thank you.___ (Students leave class)

USE AND MISUSE

Description

This activity is designed to provide practice with different styles of teaching the same lesson. No materials are needed.

Rationale

Objective analysis of teaching behavior clearly demonstrates vast differences in style. One of the objectives of the workshop is to expose teachers to these differences. It also encourages them to examine their own behavior and consider alternative presentations of the same material. The activities prescribed in this section are designed to give the participants experience with different teaching styles. The primary purpose is to encourage them to experiment with different methods of teaching between the second and third sessions. These lessons will again be recorded, tallied and transferred to a matrix to see if the matrix is descriptive of the different approaches. Flexibility in teaching has been encouraged by previous activities where matrices have been examined while teachers demonstrated questions which either limited responses or allowed free exchange.

Objectives

1. Participants become aware of different approaches to teaching the same lesson.
2. Participants have experience in teaching using different, prescribed verbal behavior patterns.
3. Participants become aware of the dangers of trying to involve teachers in interaction analysis who are not in the workshop.
4. Participants are encouraged to plan two different lessons between the second and third sessions. They should bring a matrix depicting each.

Comments

1. These activities need careful orientation and clear instructions. Getting the attention of the group and ending an activity is often difficult due to the high degree of participant involvement. Instructor participation is at a minimum but circulation among the groups and clarity of instructions is essential to the success of the activity. If sufficient time exists, another activity might be chosen from the section on Fun and Games. Every participant should have the opportunity to lead at least one discussion during some phase of the second session.

PROCEDURES

1. Have participants break into groups of six.
2. Designate (volunteers) a leader in each group to lead a discussion about the value of a teacher using only "3's." After the introductory remarks the leader may use only "3's" in response to another participant's discussion. (Five to ten minutes)
3. Designate a new leader and have the rest of the group plan two different lessons on the same material the instructor will be teaching in the next two weeks. The instructor should take notes and only respond with "1, 2 and 3's" or "5, 6 and 7's" until both lessons are planned.

INTERIM ACTIVITIES

1. Give the following homework assignment to the large group. Explain that it will be shared with the others.
    a. Record and make matrices of at least two different approaches to the same lesson
    b. Record and make a matrix of a different lesson
2. Instruct each participant to plan a series of six-minute lessons which he will teach in a small group at the next training session. Encourage them to bring whatever instructional materials would be helpful in teaching the lesson.
    a. One lesson should be planned so that no 9's are used yet the students give at least forty responses in category 8
    b. Another should be planned using only odd numbered categories (1, 3, 5, 7, 9). All must be used at least once and students must talk between one to two minutes
    c. Another lesson should be planned in which the teacher may not use categories 4, 5, 6 or 7
    d. The fourth lesson should be planned so that no 8's are used by the students. The teacher, however, must give at least fifteen responses in category 4
3. Ask the participants to read the following assignment:

Section I	Chapter 3
Section II	Chapters 2 and 3
Section III	Chapters 3, 13 Select appropriate chapters from 4-10

4. Participants again should be cautioned regarding attempts to involve or teach the system to others who are not in the workshop.

Activity 13

SHOW AND TELL

Description

Participants are to bring their own matrices to share. An overhead projector is needed for those individuals who have made transparencies of their observations.

Rationale

Many participants have been actively involved in making observations and matrices of those recordings in between sessions. Most will be highly motivated to share these experiences. In order to facilitate the sharing of this information the participants should be assigned to small groups. If circumstances have prevented some participants from completing the assignments, considerable anxiety will be relieved.

Objectives

1. Each participant will share his experience and observations with a small group.
2. Each participant will review information and expose misconceptions and differences concerning interaction analysis concepts.
3. Each participant will identify needs for further review and additional information.

Comments

1. While one purpose of this activity is for the instructor to get several lists of questions to be answered, he should resist the temptation to spend the next hour answering them. Most of the questions will be answered in Activities 14 and 15. Only those which the instructor perceives as basic to 14 and 15 experiences should be dealt with at this time but all should be dealt with sometime during the session. This activity should take thirty minutes.

PROCEDURES

1. Divide the participants into groups of six.
2. Have each of them show their matrices. Members of each small group should discuss the information on the matrices and interact with each other about the lessons.
3. Ask each group to list on paper unresolved questions or problems which will be presented to the instructor for consideration during the two-day session.
4. Discuss significant questions from these with the total group.

Activity 14

TALLYING

Description

The participants again will review briefly the entire process beginning with tallying. Some new material is introduced for variation.

Trainer Materials	TAPES:	First Grade Mathematics, Episode 4 Typing, Episode 5 Flowers Discussion, Episode 7 School Mathematics Study Group (SMSG) Mathematics Lesson, Episode 6 (Optional)
Participant Materials	HANDOUT:	Tally Sheets (Several Per Participant)
	HANDOUT:	School Mathematics Study Group (SMSG) Mathematics Lesson Typescript, page 166-174 (Optional)
	HANDOUT:	SMSG Mathematics Matrix, page 175 (Optional)

Rationale

By this time, it should be obvious that some individuals have done a considerable amount of homework. Others have done some and a few may have had difficulty arranging for any outside observations. As a result, some people need review to restore timing, increase internal consistency, or achieve a higher degree of external reliability. Therefore, it is necessary to review the entire process presented in the first sessions, starting with tallying. Even those who have done a great deal of homework will find some points they have overlooked.

Objectives

The objectives for the review sections are the same as those listed for that activity in Section I. In some instances the activities will serve as a check that the competency still exists, for others the process will improve their timing, internal consistency or external reliability.

Objectives

1. The participants will record an observation either on the Tally Sheet or directly into the Working Matrix at least every three seconds.
2. The participant will have internal consistency as the same material is repeated.
3. Each participant will know a set of ground rules which will assist him with difficult distinctions and subtle discriminations. (See Amidon and Hough Text, pages 126-128)
4. The participant will develop external reliability by comparing his observations with other participants and the completed matrices provided.
5. Further practice will cause participants to maintain consistency and reliability throughout extended observations for ten minutes or longer.

Comments

1. As in the second session, individual differences in motivation need to be considered. A few, brief comments stating the agenda and need for a review may relieve this concern.
2. The instructor's concern should be focused only on seeing that each individual has had sufficient experience in tallying and making some of the more subtle distinctions. Complete mastery will only come with individual practice outside the workshop.
3. The sixth episode on the seven-episode training tape is a mathematics lesson recorded in a disadvantaged junior high school in the midwest. A more precise description of the class is found on the first page of the typescript. No reference is made in the procedures to the

Comments

use of this tape, typescript and matrix. It is provided as an extra resource should the instructor realize a need for greater variety or additional examples during Activities 14 through 18.

PROCEDURES

The instructor should reserve one hour for review of the tallying process. This hour should contain at least twenty minutes of tallying from two different taped lessons.

EXAMPLE:

1. Tally three minutes of Flowers Discussion
2. Small group consideration of questions and problems [This first tally usually brings to mind a series of questions which came up during the interim between sessions.]
   (Ten minutes)
3. Tally remainder of Flowers Discussion
4. Small group consideration of questions and problems
   (Three to five minutes)
5. Instructor responds to unresolved problems
   (Three to five minutes)
6. Tally one minute of First Grade Mathematics Lesson
7. Small group consideration of pacing and interchange tallying
   (Five minutes)
8. Tally five minutes of First Grade Mathematics Lesson
9. Repeat steps 4 and 5 above
   (Five minutes)
10. Tally the last five minutes of Typing, Episode 5 of the training tape

Activity 14

SCHOOL MATHEMATICS STUDY GROUP (SMSG)
MATHEMATICS LESSON TYPESCRIPT

This teaching episode takes place in a junior high school serving a low socioeconomic district. This is a mathematics class in which the new SMSG materials are being used. The lesson today concerns matching symbols that represent different numbers. This is a first step toward the development of set theory. The instructional materials are concerned with ordering foods at a restaurant by symbols rather than by the names of the particular dishes. Later, the students will learn that a particular set of symbols belongs to a class and the elements within the class have something in common. The first voice you hear will be that of the teacher.

CATEGORY

6,6 T: Why don't we skip ahead 'till, ah, (1) pages 18 (2) and 19 and
6 let's talk about those two pages today. O.K.? 18 (3) and 19.
10,10 (4) I'm sure there (5) isn't a person in here that likes to eat.
5,5 (6) Is there? None of you (7) care to eat too much. See on
5,5 page 18 we've (8) got a very beautiful picture there of (9) a
10,5 soda fountain (10) and, and, you can order by (11) initial,...
10,6 (12) Anyone care to read the first couple (13) of sentences
6,10 there on page 19 for me? (14)...(15) all right, why don't you
6 try reading for us? George. (16)

S: Top of 19?

6 T: Yes, top of 19. (17)

8 S: In this soda fountain (18) the students who enter on the last
8,8,8 (19) day of school always (20) buy all the items (21) according
8 to the (22) letters that spell their names.

2 T: Good. (23)

S: Harry buys the items.

3 T: Items. (24)

8,8,8 S: Items on the (25) name that has the (26) initial H, A, R, R, (27), Y.

6,4 T: Let's stop there, thanks George. (28) What, ah, (29) what in
4 the world does that mean? Say, you have a name like Tom. (30)
What would you order?

8 S: T, (31) O, M.

3 T: T, O, M. See, no trouble about ordering in (32) this drugstore
5,4 would there? (33) What kind of items would you order Dale? (34)

---

(1) Use of question form does not alter the expectation of compliance. Category 4 is used only when an answer is expected.

SMSG Mathematics Lesson

CATEGORY		
10,8	S:	Um, (35) well, (36) I would order donuts and...
3 3	T:	O.K. (37) Let's follow that, hold it, now Dale's doing it for us. You'd order (38) a donut, that's for D, good...
2,8 10,10	S:	Donuts (39) and (40)... (41) (42) Donuts.
7,4 4	T:	Is that all you (43) can see? Can anyone help him (44) out there? All right George. (45)
10,10 8	S:	Ah, (46) (47) suds, or, ah, something in that last column. (48)
4	T:	In the last column, Spuds? (49)
	S:	Yeah.
3,6 4,4 4,3 4	T:	Spuds and suds, (50) Ha, 35¢. Um, well, (51) hold it now. Would Dale, er, would (52) George be helping Dale order correctly? (53) Yes or no? (54) No, someone says. Why not, John? (55) How is Dale supposed to order? (56)
	S:	By his name.
3,2 4 4	T:	By (57) his name, good, that's right, by his name. (58) So you help us there, John. What are the (59) items? Now, let's not find them, but what are the (60) letters of the items he should order?
9	S:	Do you mean, Tom? (61)
	T:	Dale.
3,10 8	S:	Oh, Dale. Donuts, (62) (63) apples and... (64)
2	T:	Go ahead. (65)
9 9	S:	You mean what kinds of things he should order (66) Do you, ah, you mean like (67) D, A,...
	T:	That's right.
8	S:	D, (68) A, L, E.
3	T:	D, A, L, E, good, isn't (69) that right, Dale? That's what you were looking for wasn't it?
8	S:	Yeah. (70)

SMSG Mathematics Lesson

CATEGORY

4 T: Can you find what letter "A" stands for? (71) Anyone find what
4 the letter "A" stands for? (72)

S: I did.

T: O.K. Carl.

S: Hamburger.

3 T: That's a hamburger, (73) 30¢, see? What does the letter "L"
4 stand for? (74) Lucille, do you find it?

8 S: Hot (75) chocolate.

2 T: That's all right, you've gotta look around (76) there.

S: I've got it.

8 T: O.K. (77) Betty.

S: Hot chocolate.

5,5 T: All right, (78) so far he's got a donut, a hamburger, (79) and
4 "L" is hot chocolate. What does the letter (80) "E" stand for?
1 That's a rough one to find. Anyone (81) find that one? Ah,
4 Vickie? (82) Did you see it?

10 S: Um, (83)

10 T: That's (84) poor printing. Is this the one you're looking at,
5 on (85) the counter? That's a doke. I suppose that's a relative
5,5 (86) of a coke, I don't know. But it's a drink of some (87)
5 kind, see? So Dale goes in and he says to the waitress, (88) I
5 want D, A, L, E. (89) Vickie, what items would you order?
4 Now (90) without even looking at it. What would be the letters
4,10 you would use? (91) (92)

S: V, I, C, K, I, E.

2,4 T: Good, that's right. (93) And how about you Thelma? (94) What
4,10,10 letters would you order? (95)... (96) (97) Just what letters
4,10,4 would you use? (98) (99) What would she order? (100)
10,1 (101) Are you a little confused? (102)

S: Yeah.

---

(81) Category one is used to reflect the empathy of the teacher in predicting or sensing difficulty.

(102) This is an excellent example of the teacher sensing and reacting to the feeling of a student.

Activity 14

SMSG Mathematics Lesson

CATEGORY

5 T: O.K. Now, (103) you see this is a real weird drugstore and
5 (104) It's a weird day, the last day of school. Everyone says,
5,5 (105) we're going to the drugstore and we order our names, (106)
10,5 see? (107) So that Roy over here would go in, (108) how do you
5 spell his name? R, O, Y. So (109) he just goes in and says
5 I'll order whatever "R" (110) stands for or whatever "O" stands
5 for and whatever "Y" stands for. (111) Have you ever been into
4 this Bridgemen's on Lake Street (112) where you order by number?
5 Don't you (113) order by number there? Aren't there some restau-
5 rants you go into (114) where you say, I want to order number 2
5,5 or (115) number 17-a, you know, something (116) like this? Well,
5,5 this is a weird one too, (117) you order by letter. (118) Now
4 Thelma, that means that you would order what letters? (119)

10,8 S: (120) T, (121) H,
10,8 (122) E, (123) L, M, A?

2 T: Good. Now see I, (124) she has, how many items did she order?
5,5 (125) T, H, E, L, M, A. Six (126) items, right?

S: Right.

2 T: Her bill would be (127) quite high wouldn't it? (giggles)
2 Course you might also get (128) sick depending on what it
2,3 stands for, you know. (129) You have seven items? Anyone (130)
4 have more than seven items in their first name? (131) Count
10 on your fingers. (132) You have more than seven? What's your
first name.

S: Charlotte. (133)

3 T: Charlotte. Oh boy, that's a good one. Charlotte. (134) I
2 wonder if you could even pay the bill. (135) Huh? Well, let's
5,4 find out. (136) How can we find out what the bill (137) would
4 be for your name? How would (138) you do it?

---

(104) The use of the word "weird" is most probably an example of projecting a possible perception of the student. A 3 or even a 1 might be a better classification. More evidence, such as would be available in the live classroom situation, would be helpful.

(128) (129) Using Category 2 to represent humor which is designed to arouse interest is an application of a ground rule. Humor, not at the expense of an individual, which develops interest and enthusiasm is arbitrarily classified as support and encouragement.

(135) Humor used to create interest is Category 2.

SMSG Mathematics Lesson

CATEGORY

S: Look on the signs.

3 T: Yes, and then what? (139)

9 S: Well, you would find an initial and then (140) put down the price and...

4 T: Go through your name Neil, (141) and tell us how you'd do it.
4 We'll all listen. See if he's correct. (142)

S: What I order?

T: Yeah.

8,10 S: I'd (143) order, (144) ah,
10 (145) I can't read that TNT.

9 T: T? (146) TNT Freeze.

9,9 S: Oh, then (147) I'd order, ah, (148) that doke.

3 T: Oh, you're ordering your last (149) name. That's O.K.

9 S: No, my first name. (150)

T: Neil?

9 S: Yes, (151) Neil.

3 T: Oh, well, let's find the item that starts (152) with N then. Where would that be? Where is this?

9 S: Well, that's all (153) that ice.

7 T: Oh, ice tea, excuse me. I was looking (154) somewhere else. Go ahead.

8 S: Coke. (155)

T: Yeah, two drinks.

8 S: And, ah, hot chocolate. (156)

3,4 T: O.K., three drinks. (157) Now where's the letter I? (158)

S: I don't think it's there.

T: Did you skip it?

---

(154) Self-justification by the teacher.

SMSG Mathematics Lesson

CATEGORY

S: (Several students speak)

4 T: Can anyone find it? (159)

S: (Several students speak)

5,2 T: Well, it's a milk shake. (160) Boy are you going to be sick.

S: Yeah.

3,3 T: Let's (161) see, he had an ice tea, a coke (162) a milk shake,
3 (163) and a hot chocolate. How would, what would your bill be,
4 (164) Neil? How would you find it?

8 S: Well, you'd add all of the (165) prices together.

3 T: You would. How about the orders, (166) which would, how would
4 you put them down on a piece of paper (167) if you were the
4 waitress and add them up? (168)

S: Well...

4 T: Would you care to do it on the (169) board for us? Or, don't
4 you? You don't have to if you don't want to. (170)

S: Ah, I don't want to.

4 T: Anyone care to do it for Neil? (171) You try it, O.K.

9 S: How (172) do you spell his name?

6 T: No, we don't have to do that. We'll just give you the (173) prices.

10 S: Oh. (174)

2 T: You be Neil's secretary just for today. Be sure he pays (175) you.

6 T: O.K. Neil give them (176) the dope.

8,10,8 S: 15, (177) 15, (178) (179)
10,8 25, (180) 15. (181)
10,10 (182) (183)
10,10 (184) (185)
10 (186)

---

(169) Directives in the form of questions are usually classified as 6, but this is really a question.

(175) More humor, again.

SMSG Mathematics Lesson

CATEGORY

7 T: Let him add it now, he's the waitress. (187) See.

10,10 S: (Probably, the student works at blackboard) (188) (189)
10 (190)

2,10,2 T: That's a boy, (191) good. (192) 70¢, very good. (193) O.K.
3 (194) Now the boss won't fire him. Wouldn't it be lousy if
5 you were a (195) waitress and you added up the bills wrong?
4 (196) What would happen to you?

9 S: They would fire him. (197)

3 T: They would fire you. Wouldn't they? (198) What happens, what
4,4 would (199) have happened here Roy, (200) if instead of starting
4 with,...(201) could he have put those three fifteens together
4 and then the 25 on the (202) bottom? Make any differences in
4 his bill? (203)

S: No.

4 T: Why not? (204)

9 S: Because they are using the same numbers. (205)

3 T: It adds up the same? What if I put the 25 on top (206) and then
4 the three fifteens? That would be different, now...(207)

S: No.

T: It wouldn't be different?

S: No.

4 T: Why (208) not?

9 S: Because you've got the same numbers. (209)

T: You mean that if you changed the numbers around when you're
3,4 adding them it doesn't (210) make any difference? (211)

S: I don't know.

---

(187) It is difficult to categorize teacher statements in which criticism is combined with humor. "Let him add it now," is criticism, category seven (or at least category six); calling a boy a waitress is humor. One solution is to classify both phrases as is done here.

SMSG Mathematics Lesson

CATEGORY

3 T: O.K. We'll check it later and see how (212) he, if that's true,
3,6 huh? Um, (213) pick a name there on page 19 for us (214)
6 somebody. And tell how you did it. Someone that...(215) O.K.
6 how about you. Let's see, (216) Lolain, is that the way you
4 pronounce it? Or do (217) they just call you Lain?

S: Lain.

3 T: That's good enough for me. (218) What name are you going to
pick?

8 S: I'll pick James. (219)

2 T: James, good. (220)

8,8 S: He'd get a (221) J, a chocolate malt. (222)

T: Right.

8 S: A hamburger (223) with stuff on it.

T: Good.

10,8 S: A (224) Moron's (225) Delight.
8 (226)

3 T: A Moron's Delight. (227) (Student was mispronouncing it) You
5 know, that's one of those, ah, I was into Bridgeman's (228) and
they had one of those, ah, what do they call those great big
5,5 tubs (229) you get full of ice cream? A Lolla Palooza, (230)
5 right? Isn't that right? For a dollar you get (231) ah, it
5 looks like a big bowl, goldfish (232) bowl full of ice cream.
5 This Moron's Delight is something like that. (233)

10,8 S: And he'll get, ah, (234) doke. (235)

3 T: A coke. (236)

8,10 S: And spuds and suds. (237) (238)
10 (239)

T: All right.

S: Shall I add all them up now?

5 T: Well, (240) you don't have to. You'd add up all those items
5 and that would be (241) your bill, huh?

S: Yeah.

SMSG Mathematics Lesson

CATEGORY

4 T: Correct, Lain? (242) By the way, what are spuds and suds? You
4 don't hear (243) very much about them here. If you've done any
5 traveling in some (244) parts of the country they have a little,
5 ah, (245) little places that they've got a neon sign above saying
5 (246) spuds and suds. Can anyone guess what they might be?

8 S: Potatoes. (247)

3 T: Yes, potatoes, spuds (248) would be potatoes. Ah, and what
4 would suds be? (249)

S: Gravy?

5 T: Root Beer? Yeah, it could (250) be the way some people make
3,3 gravy. Sure. (251) Usually it's like a hamburger (252) place
5 or something like that. It's just sort of an (253) interesting
5 name. Um. (254) Well, that's the way you would go through it.
5 Now I'm sure (255) that there isn't anyone in the class that
5 could do this whole page. (256) There are some weird names
5 there (257) and I'm not so sure that we could pronounce them
5,10 all. (258) But let's say we (259) pick any five down that
6,6 first column. (260) O.K.? And then we'll, (261) ah, in about
6 ten minutes we'll stop and (262) see what kind of work you've
6,6 done with those answers. (263) Pick any five characters (264)
6 down that first column, any five names (265) and see what their
6,3 bill would be. (266) Like now, Lain (267) just gave us all the
3 scoop for James. He had on (268) a piece of paper, then we
6,6 have to copy down (269) those prices (270) and fill in the bill
5 there. You can write right in the book, by the way. (271)
5 It's your book so you can write right in the book. (272)
6 Write your answers in the book. (273)

Activity 14

SMSG MATHEMATICS MATRIX

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1				1				1			2
2		1	4	2	2	1		6	1	2	19
3		2	5	8	4	2		2	3	1	27
4	1		2	18	2			14	4	9	50
5		1		8	31	1		1		6	48
6			1	3	1	13		2		4	24
7		1						1			2
8		10	8	7	3	2		10	2	8	50
9		1	6	1	1	1	1	1	4		16
10	1	3	1	2	4	4	1	12	2	12	42
TOTAL TALLIES	2	19	27	50	48	24	2	50	16	42	280*
INCIDENTS	2	18	22	32	17	11	2	40	12	30	
Percent of Total	.7	6.8	9.6	17.9	17.1	8.6	.7	17.9	5.7	15	
	35				26.4			23.6		15	
	Teacher Total: 61.4							**Student Total**		**Silence**	

*Total differences exist from varied perceptions of the same event.

Activity 15

MATRIX REVIEW

Description

The participants will review matrix interpretation.

Trainer Materials	TRANSPARENCY: Role-Playing Matrix, page 120
	TRANSPARENCY: Taba Matrix, page 179
	Overhead Projector
Participant Materials	HANDOUT: Role-Playing Matrix, page 120
	HANDOUT: Taba Matrix, page 179

Rationale

As with the review of the tallying, we are now facing similar problems of differences between participant abilities in the review of matrix information. Involvement in the group process has proven the best procedure to follow. New material is introduced for focus on specific problems as well as for variety.

Objectives

1. The participants will know the meaning of tallies in any given cell.
2. The participants will understand the "before" and "after" sequence of events as depicted on a matrix.
3. The participants will identify patterns of verbal influence as depicted on a matrix.
4. The participants will have developed a modus operandi for analyzing an interaction analysis matrix.

Comments

1. Freedom of movement by the instructor is advantageous both to determine levels and differences of ability among the participants and to answer questions which may be impeding the review of the process.

Comments

2. The Role-Playing Matrix will be used again during Activity 16b. At this time, little more than descriptive analysis needs to be done.
3. Variety and spontaneity are important due to the review nature of the activity.
4. Large group sessions dominated by the instructor should not be extended over five to ten minutes during any of the review sessions.
5. The Taba Matrix, page 179, represents a class taught by a young male teacher. The students are fourth graders in an experimental class using the Taba questioning strategies in social studies. The students are listing, grouping, explaining and organizing specific facts about life in Latin America.

   As the matrix illustrates, the teacher asks very short questions which result in both 8's and 9's. Divergent student talk results as much from 3's and 8's as it does directly from those questions.

PROCEDURES

1. Refer the participants to the Role-Playing Matrix.
2. Divide into groups of six.
3. Designate one person (or ask for a volunteer) in each small group to lead a discussion reviewing all the information on the matrix.
    a. Instruct the leader to ask specific questions that allow only "8" responses. Designate one person (or ask for a volunteer) to tally the session. The leader may add information of his own. (In effect this might be a 5-4-8-5 lesson.)
    b. After five minutes designate a new leader and a new tallier to conduct a lesson asking questions that lead to "9" responses. (For example, what other information is on the matrix that was not covered in the previous lesson.) In effect, this would be a 4-9-3-4 lesson.
4. Discuss the major unresolved questions with the total group.
5. Refer the participants to the Taba Matrix and repeat Steps 3a, 3b and 4.

Activity 15

TABA MATRIX

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2									2		2
3			16	4	2			3	16		41
4		2		11	4	2		36	44	4	103
5				8	7				6	1	22
6				2							2
7											
8			3	10	4			7	24		48
9			22	66	4				134		228
10				2	1			2	2	1	8
TOTAL TALLIES		2	41	103	22	2		48	228	8	454
INCIDENTS		2	25	92	15	2		41	94	7	
Percent of Total		.4	9	22.7	4.8	.4		10.6	50.3	1.8	
	32.1				5.2			60.9		1.8	
	Teacher Total: 37.3							Student Total		Silence	

Activity 16

FUN AND GAMES

Overview

Interaction analysis concepts offer several possibilities for use by teachers, supervisors and administrators. The system is useful as a research tool, as a supervisory tool for observing teaching, as an introspective device, and as a prescriptive lesson planner. In addition to such formal use of the system, a highly productive result of training in interaction analysis is the ability it gives teachers to consciously manipulate the verbal behavior of themselves and others. Hopefully, (with justification research) verbal behavior in the classrooms of these teachers will be what they decide is the best for the situation rather than what happened to occur as is most often true. The following series of activities require the participant to manipulate or limit his verbal behavior in tightly prescribed ways.

Activity 16a

CATEGORICAL TEACHING

Description

The participants will experiment with different styles of teaching. Records will be made by observers for feedback.

Participant Materials   HANDOUT: Tally Sheets (For Observers)

Rationale

Conscious limitation of specific verbal behavior must be practiced and analyzed so the actual expanding, limiting or manipulating in the classroom setting is spontaneous and accurate. This activity is designed with such practice and analysis in mind.

Objectives

1. Participants will demonstrate the ability to restrict or expand their use of silence and any of the seven teacher categories.
2. Participants will realize the effect of specific verbal behavior patterns on lessons, teachers and students.

PROCEDURES

1. Divide the participants into the same groups of six used during Activity 15.
2. Have three participants from each group teach the lesson assigned on page 159, Step 2a. There should be no 9's but at least forty responses in Category 8. The lesson should take between five and six minutes. In each case the individual on the "teacher's" right should tally the lesson.
3. Upon the completion of each six-minute lesson, ask the recorder to lead a short discussion within the small group about the "teacher's" success or lack of it in relation to techniques, limitation on material or scope, etc.
4. Repeat Steps 2 and 3 above using the odd numbered categories as defined on page 159, Step 2b. This entire activity should take about 90 minutes.

CONFERENCE ROLE PLAYING

Description

The activity involves matrix interpretation, practice in controlled teaching and role-playing conferences.

Participant Materials	HANDOUT: Role-Playing Matrix
	HANDOUT: Eleventh Grade Social Studies Typescript, pages 187-188
	HANDOUTS: Subgroup Instructions for Role Playing, pages 189-196

Rationale

Almost regardless of the job descriptions of the participants, they will be involved in translating interaction analysis data to other teachers and professionals. This activity is designed to introduce them to the difficulties of changing teacher behavior. The situation is contrived to exaggerate these difficulties for discussion purposes.

Objective

Participants will recognize and express a need for further training in conference and supervisory techniques.

Comments

1. The participants will be role playing:
    a. Jean or Gene Brooks: an intelligent, scared, insecure student teacher who is defensive from a position of weakness and uncertainty
    b. Dana Crawford: an intelligent, confident, cocky student teacher who doesn't like teaching but will tolerate it for a time
    c. Mr. or Mrs. Able: this supervisor is an inquirer. There is no agenda other than to demonstrate the process of interaction as they discuss whatever happens to be of concern to the student

Comments

d. Mr. or Mrs. Baker: this supervisor is not, at the moment, concerned with the problems of the student teacher. His only purpose is to gain rapport and communication ability with the student

e. Mr. or Mrs. Charles: this supervisor is very direct. He knows what good teaching is and he is concerned because the student teacher does not demonstrate it. His role is to tell the student how to improve. Interaction is to be at a minimum

2. The key to successful operation of this exercise is the precise execution of the procedure indicated in Step 8 of the Procedures.
3. Be sure not to rush the parts of this activity. The value of the activity is not the conference itself but the discussions that precede and follow it.

PROCEDURES

The following directions are for a total group of thirty. Instructors may wish to adapt these procedures to fit their own grouping needs. The ratio, however, should remain as indicated. Prior to this Activity, the instructor should put the pair number (i.e. 1 through 15) in the space provided on the appropriate role materials. The chart on page 186 indicates how this may be determined.

1. Divide the total group into two equal parts.
2. Again, divide one of these into two equal parts. (Groups A and B)
3. Divide the other half into three groups. (Groups C, D, and E)
4. Refer each participant to the Role-Playing Matrix and the accompanying Eleventh Grade Social Studies Typescript.
5. Distribute role-playing instructions as follows:

   Group A - Jean Brooks
   Group B - Dana Crawford
   Group C - Mr. Able
   Group D - Mr. Baker
   Group E - Mr. Charles

   Steps 1-5 will take about ten minutes.
6. Instruct each group to read and analyze the role they will play in an ensuing student teacher-supervisor conference.
7. Instruct groups C, D, and E to plan their role as supervisor in a fifteen to twenty minute conference using the Role-Playing Matrix and the Eleventh Grade Social Studies Typescript as data. Steps 6-7 will take twenty to thirty minutes.

Procedures

8. Divide the total group into pairs so groups A and B are equally divided among groups C, D, and E. By numbering each member of each group the pairs should combine the following.

Pair	Participants	Pair	Participants
1	A1-C1	8	B1-C4
2	A2-C2	9	B2-C5
3	A3-C3	10	B3-D3
4	A4-D1	11	B4-D4
5	A5-D2	12	B5-D5
6	A6-E1	13	B6-E3
7	A7-E2	14	B7-E4
		15	B8-E5

Instructors with an odd number of participants in the workshop could assign one person to observe one group.

9. Conduct a fifteen to twenty minute conference in the hall, workshop room etc. so enough room is available for each pair to talk and discuss independently.

10. Divide the total group into four subgroups, each with a member from groups A, B, C, D and E.

11. Discuss roles, difficulties, successes, feelings, etc. each small group. (This discussion will take thirty minutes.)

The entire Activity will take ninety minutes.

Activity 16b

ELEVENTH GRADE SOCIAL STUDIES TYPESCRIPT

Carol has presented a report on James Madison.

T: Thank you, Carol. Now, class, why do we revere and recognize J. M. as the Father of the Constitution? Charles?

Chas: It was his idea?

T: (Shakes head "no" - immediately goes on) Bob?

Bob: He wrote it?

T: Well . . . that is only partially correct. In actuality, he authored the Virginia Plan upon which the Constitution was based. He also tendered many suggestions which were utilized in the drafting of the Constitution. Does anyone wish to comment? (Brief pause) What were J. M.'s views on religious freedom? Did he believe we should enjoy religious freedom?

John: (Volunteers) Yes.

T: "Yes" is correct. He firmly advocated religious freedom. In fact, it was this very issue that drew Madison and whom together, Dick?

Dick: Adams?

T: (Shakes head "no") Fred?

Fred: Hamilton?

T: You're guessing. One of the classic friendships in our political history involved Madison and whom? Sam?

Sam: Jefferson.

T: Of course! Madison and Jefferson. Do you think you will all remember that now? Jefferson and Madison opposed the Alien and Sedition Laws; didn't they? Why? Mike?

Mike: They didn't like them. They didn't think they were fair.

T: Yes! Madison thought they. . .(Student interrupts.)

Jane: What were these laws?

T: We had that last week. You should have paid attention. Mona, can you tell Jane what these laws were?

Mona: I'm not sure.

T: Anybody? Anybody know?

Social Studies Typescript

Linda: My father says they're like what Congress passed to put down the Communist Party a little while back. He says that. . . (Teacher interrupts.)

T: We haven't time to go into that. We're trying to find out what the Alien and Sedition Laws were. (brief pause) Well, these laws. . . (Teacher reviews laws and tells why Madison opposed them.)

Activity 6b
Pair

STUDENT TEACHER: Jean (Gene) Brooks

You have just taught your second class. In a few minutes you will have a conference with your supervising teacher.

After your first class (American History, low ability juniors) you thought you had done well. You had covered a lot of material, described it clearly, organized it well. In any college class you would have received an A for such a report. You were disappointed that your supervising teacher seemed dissatisfied. It worried you that she didn't seem impressed by your excellent preparation.

Below are some questions with your own answers to them. Read them through and try to understand the kind of person you are as Jean (or Gene) Brooks.

1. WHAT KIND OF TEACHER DID YOU LIKE BEST? I liked teachers who made clear what they expected us to learn, what we were to read and how we would be graded.

2. DID YOU PREFER LECTURE OR DISCUSSION CLASSES? WHY? I liked lecture classes better because I felt I learned more in them.

   In discussion classes I usually became irritated with the students for confusing things the teacher had to straighten out. I would have preferred to hear the teacher talk.

3. HOW DID YOU PARTICIPATE IN DISCUSSION CLASSES? I talked very little. I usually only spoke if the teacher asked a specific question and I knew what was wanted.

4. WHAT IS YOUR ATTITUDE TOWARD YOURSELF AS A STUDENT? I'm a good student. I like to study. I like being sure of what I am talking about. Teachers always complimented me on being such a model student. I really liked that.

5. HOW DO YOU FEEL ABOUT STUDENT TEACHING? I looked forward to it, but now I am really worried. I seem to be doing poorly but I don't know what's wrong. I feel terrible because for the first time in my life I am failing at something. Practice teaching is so indefinite--there's too much to keep track of all at once--and I don't know exactly what the supervising teacher wants me to do. I'd like her to tell me what to do.

6. WHAT IS YOUR ATTITUDE TOWARD THE CLASS YOU ARE PRACTICE TEACHING? I don't really understand poor students. I wish I could work with the top students. I believe that maybe these students cannot do the kind of work they are being given.

7. HOW DO YOU EXPLAIN THE LACK OF STUDENT PARTICIPATION WHEN YOU TEACH? HOW DO YOU FEEL ABOUT IT? I think the students don't study enough. They don't do their reading carefully enough. They couldn't answer questions today because they didn't pay attention to Carol. I don't care except that the supervising teacher seems to want me to try for more participation.

Student Teacher: Jean (Gene) Brooks

8. WHY DID YOU CUT LINDA OFF IN HER RESPONSE ON THE TRANSCRIPT? Because her comment had nothing to do with stating what the Alien and Sedition Laws were. I was trying to get somebody to answer Jane's question.

9. WHAT DOES BEING A TEACHER MEAN TO YOU? I have always admired teachers and looked up to them. From the first grade on I have wanted to be a teacher. I like teaching. My friends often kid me that I try to teach everybody. It's true, too. If I know something for sure, I like to help other people learn it.

Now read through the transcript and note how you taught that class. Can you see why the kind of person you as Jean (or Gene) Brooks would have handled the class in this way.

When the conference starts, try to feel and act as you think Jean (or Gene) Brooks would in response to what the supervising teacher does.

Feel free to add any additional information or feelings in a way that will be consistent with the Jean (or Gene) Brooks described above.

If you can really see the supervising teacher and feel about this conference as Jean (Gene) would, you can learn a great deal about the supervision task.

Activity 16b
Pair _____

STUDENT TEACHER: Dana Crawford

You have just taught your second class. In a few minutes you will have a conference with your supervising teacher.

After your first class (American History, low ability juniors) you thought you had done well. You had covered a lot of material, described it clearly, organized it well. In any college class you would have received an A for such a report. You were disappointed that your supervising teacher seemed dissatisfied. The main criticism seemed to be that none of the students had participated. It annoyed you that your excellent preparation was completely overlooked.

Below are some questions with your own answers to them. Read them through and try to understand the kind of person you are as Dana Crawford.

1. WHAT KIND OF TEACHER DID YOU LIKE BEST? I didn't really like any teachers. I just wanted them to let me alone. I found out if I gave them what they wanted I got good grades and got along all right with them.

2. DID YOU PREFER LECTURE OR DISCUSSION CLASSES? WHY? I like lecture classes for two reasons. First, I didn't have to get involved with other people. I was just one among many and all I had to do was take notes, read the assignments, write the papers and pass the tests. Second, it's easier to know what the teacher wants you to give back to him in a lecture course.

   I always felt that lazy teachers used discussion classes. The teacher doesn't really know what he wants the students to learn and so he avoids the hard work of making up his mind and preparing a lecture by turning the class over to the students.

3. HOW DID YOU PARTICIPATE IN DISCUSSION CLASSES? I usually didn't talk. Once, in a discussion class the rest of the class laughed at some comments I intended seriously. I never did know why they laughed. I clammed up after that.

   (I wouldn't admit this to most people, but any free situation makes me feel unsure of myself. Basically, I never feel comfortable around people. I don't like situations where I am not sure of the right thing to do.)

4. WHAT IS YOUR ATTITUDE TOWARD YOURSELF AS A STUDENT? I'm a good student. I'm sort of a loner with a reputation for being a "brain." I like to study. I like knowing more than the others, not because I show it off, I don't. I just feel kind of superior knowing that I know more than they do.

5. HOW DO YOU FEEL ABOUT STUDENT TEACHING? I dislike it. I'm only doing it so I can teach in a high school long enough to earn the money to go to graduate school and get a Ph.D.

Student Teacher: Dana Crawford

6. WHAT IS YOUR ATTITUDE TOWARD THE CLASS YOU ARE PRACTICE TEACHING? I resent being assigned to a low ability section. I think I could do better with top students. I really don't understand students like these.

7. HOW DO YOU EXPLAIN THE LACK OF STUDENT PARTICIPATION WHEN YOU TEACH? HOW DO YOU FEEL ABOUT IT? I don't really want them to participate. I guess they know it. I believe they kind of resent me.

   (I wouldn't admit this to most people but these kids scare me. I'm worried that they might make comments or ask questions that have nothing to do with the subject just to get my goat. I don't know how to handle this kind of situation. They could make me look silly. I'm afraid they might laugh at me.)

8. WHY DID YOU CUT LINDA OFF IN HER RESPONSE ON THE TRANSCRIPT? She was bringing up the topic of Communism. That's too controversial. One of the students might go home and report something said in class and I'd be tagged a radical. That could queer my whole future. I think it's best to keep off topics that are too controversial.

9. WHAT DOES BEING A TEACHER MEAN TO YOU? I really want to do research and write scholarly books. In order to do that I guess I'll have to be a college teacher. I don't really care for teaching but I can stand it. People respect a college teacher. You don't have to have much contact with students, and you can get ahead by publishing.

Now read through the transcript and note how you taught that class. Can you see why the kind of person you are as Dana Crawford would have handled the class in this way?

When the conference starts, try to feel and act as you think Dana Crawford would in response to what the supervising teacher does.

Feel free to add any additional information or feelings in a way that will be consistent with the Dana Crawford described above.

If you can really see the supervising teacher and feel about this conference as Dana would, you can learn a great deal about the supervision task.

Activity 16b
Pair _____

SUPERVISING TEACHER: Mr. or Mrs. Able

The student you supervise is teaching a class in American History for low-ability juniors. The first time he (or she) did all the talking. Students had no chance to ask questions or discuss. You felt his vocabulary was over the heads of these students. He gave a tightly packed lecture filled with dates and complicated information.

In the conference afterward you tried to get to know the student teacher better. You learned that he is a good student, likes to study, gets top grades and has intellectual interests. The only direct reference you made to his teaching was to the lack of student participation. However, you didn't press the point because you wanted to get better acquainted with him.

Today, you watched this student's second attempt. You wrote down a transcript of one part showing how he handled the class after Carol, one of the students, had reported on James Madison.

Read the transcript to see how he handled it.

For the purpose of our workshop demonstration today, you are asked to follow the conference pattern described below.

You suspect that the student teacher's difficulty in getting participation shows that he doesn't understand the difference between participation resulting from the student's involvement and participation which is just talking.

You want to try to demonstrate what genuine participation is by the way you handle the conference. Can you help this student study his own teaching style, develop questions about it, and determine how to get the data to answer his questions?

You need to know more about this student. Note the following questions.

> What importance does he attach to student participation? Does he know the difference between genuine participation and talking? How does he participate in classes?
>
> Convey your interest in understanding him so the two of you can work together. How does he feel about teaching? Why does he want to be a teacher?
>
> How would this student like to improve his teaching? What goals would he like to set for himself the next time? How does he feel you can help him achieve his goals?
>
> Can he identify places in the transcript where he might have responded in ways that hinder genuine participation?

Activity 16b

Supervising Teacher: Mr. or Mrs. Able

Remember: Don't try to hint or manipulate. If you want to say something about the transcript or about what is good teaching, say it directly. But mostly, try to make this a joint problem-solving conference.

If you are successful in getting the student teacher to participate with you as a partner, discuss what the conference itself demonstrates about the importance of participation. How does he feel about the conference? Help him compare this experience with what it would be if you had lectured to him about teaching.

What is the effect of handling the conference in this way?

Activity 16b
Pair _____

SUPERVISING TEACHER: Mr. or Mrs. Baker

The student you supervise is teaching a class in American History for low-ability juniors. The first time he (or she) did all the talking. Students had no chance to ask questions or discuss. You felt his vocabulary was over the heads of these pupils. He gave a tightly packed lecture, filled with dates and complicated information.

In the conference afterward you tried to get to know the student teacher better. You learned that he is a good student, likes to study, gets top grades and has intellectual interests. The only direct reference you made to his teaching was to the lack of student participation. However, you didn't press the point because you wanted to get better acquainted with him.

Today, you watched this student's second attempt. You wrote down a transcript of one part showing how he handled the class after Carol, one of the students, had reported on James Madison.

Read the transcript to see how he handled it.

For the purpose of our workshop demonstration today, you are asked to follow the pattern described below.

You feel that rushing this student teacher will make him (or her) defensive and worried. You want him to feel comfortable and friendly to you. Let him control the interview. Let him talk about whatever he pleases. Encourage him to talk. Try to show him your interest in understanding him and how he feels about things. You should be relatively passive, but very warm and friendly.

Don't worry about improving his teaching yet; you will have plenty of time to get into details when he is able to take criticism and suggestions.

Your style, for today, is to listen and be friendly; show your interest in him.

What is the effect of handling the conference in this way?

Activity 16b
Pair _____

SUPERVISING TEACHER: Mr. or Mrs. Charles

The student you supervise is teaching a class in American History for low-ability juniors. The first time he (or she) did all the talking. Students had no chance to ask questions or discuss. You felt his vocabulary was over the heads of these pupils. He gave a tightly packed lecture, filled with dates and complicated information.

In the conference afterward you tried to get to know the student teacher better. You learned that he is a good student, likes to study, gets top grades and has intellectual interests. The only direct reference you made to his teaching was to the lack of student participation. However, you didn't press the point because you wanted to get better acquainted with him.

Today, you watched this student's second attempt. You wrote down a transcript of one part showing how he handled the class after Carol, one of the students, had reported on James Madison.

When you read through the transcript, note what he does that limits participation.

For the purpose of our workshop demonstration today, you are asked to control the interview. Make sure he doesn't get you into irrelevancies.

Your aim is to get him to:

1. Ask more open-ended questions and avoid those that can be answered with one word
2. Avoid evaluating the student's response
3. Use cross-conversation instead of all directed toward himself as the teacher. He might use leads like, "What do you think about what Jerry just said?" instead of answering or commenting himself.
4. Wait a longer period of time for a response after asking a question or inviting participation. Not speak so soon after he has asked a question.

Your style, for today, is to tell him what to do. Show him where he didn't do it in the transcript. Then persuade him to agree to try what you have suggested.

REMEMBER: You are not to use your usual style. In this conference you are to tell him what to do. Tell him why this is the way to get participation. Meet his objections; advise, persuade, get him to agree.

What is the effect of handling the conference in this method?

EFFECT OF CATEGORIES

Description

The activity involves matrix interpretation practice in controlled teaching. No materials are needed.

Rationale

"What" we say and the way we say "it" has a definite effect on the people we say "it" to. There are many means to illustate this. Some of them are used in this activity in "staged" performances without advance knowledge by the participants. The staging must be prepared covertly prior to the time of the activity.

Objective

Participants will realize the effect of specific verbal behavior patterns on lessons, teachers and students.

Comments

1. Discussions following the lessons assigned as part of the Interim Activities, page 159, may vary from a minute or two to several minutes. Make it clear to the group that this is permissible. If one subgroup finishes before the others, either instruct them to teach a fourth lesson or cut off the others after two lessons.
2. Activity 16 will run itself if a few minutes are spent ascertaining that the materials are organized appropriately. This is essential.
3. The Eleventh Grade Social Studies Typescript is the first five minutes of the lesson portrayed on the Role-Playing Matrix. Close examination of the typescript will discover specific examples of patterns illustrated on the matrix. (Activity 16b, Steps 6, 7 and 9)

Comments

4. Stress and restress the importance of "playing the role."
5. Large group summaries or discussions may be valuable following Activity 16a, Steps 3 or 4, Activity 16b, Step 11 and Activity 16c, Steps 5 or 6. Each instructor will need to evaluate small group discussions to determine this.

PROCEDURES

1. Divide the participants into the same groups of six used in Activity 15.
2. Ask three people from each group to teach the lesson assigned as an Interim Activity, page 159, Step 2d.
3. Make previous arrangements with one member from each group to teach by responding with different categories to subdivisions of his group. For example, he could use categories 1, 2, 3 to the right half and 5, 6, 7 to the left half or 1, 2, 3 to females and 5, 6, 7 to males or 1, 2, 3 to conformers to dress standards 5, 6, 7 to nonconformers or 1, 2, 3 to teachers and 5, 6, 7 to the other or vice-versa in each case. Any number of other combinations are possible in mixed groups: racially, religious, locality or grade level.

   NOTE: Instruct the "teacher" not to reveal his intent while teaching unless a group member discusses it.
4. Make previous arrangements for another member of each group to plan his behavior so that he responds differently to each group member. For example, he should always ignore the person on his left, always praise the next, always question the next, always criticize the next, etc.
5. Having completed the three lessons, instruct the staged group members to reveal their intent, if they have not already done so. Discuss the feelings and reactions within groups and transfer of such feelings to classroom situations.
6. If time permits repeat, Activity 16a, using the Step 2c, page 159.

Activity 17

TALLYING INTO THE MATRIX

Description

The participants will review tallying into the matrix.

Trainer Materials	TAPES: U-2 Incident or Typing
	TAPES: First Grade Mathematics Lesson or Flowers Discussion
	Tape Recorder
Participant Materials	HANDOUT: Working Matrix (Several Per Participant)

Rationale

Continued systematic use of interaction analysis is usually dependent upon success in gaining the ability to tally directly into the matrix. Thus, this third activity providing such practice is important both in eliminating procedural questions and in instilling confidence in the individual reliability of each participant.

Objectives

1. Participants will maintain and improve their ability to tally directly into the matrix as the lessons become more rapid and the discrimination more difficult.
2. Participants will identify areas of individual difficulty and secure instruction as to means of overcoming them.

PROCEDURES

1. Repeat Procedures 1-3 of Activity 11, page 144.
2. Have the participants tally a few two or three minute segments of the U-2 Incident or the Typing Lesson for review.
3. Using the same gradual induction process found in Steps 4-10 of Activity 11, page 145, have the participant tally the First Grade Mathematics lesson or the Flowers Discussion. Consideration of questions and problems from the small group and/or the large group would be appropriate between each observation.

   NOTE: Return to the Typing Lesson or the U-2 Incident if frustration begins to build up.

Activity 18

SUMMARY

Description

This activity is a summary of the total experience and a projection into the future. No materials are necessary.

Rationale

Closing exercises for any initial skill-training workshop are usually difficult since training is not completed and the skill is not developed. This activity is designed to provide time for review and recapitulation of any earlier activity. It should allow the participants to look ahead to potential problems and plans in the use and misuse of the system.

Objectives

1. Participants will clarify individually those aspects of interaction analysis that need further development.
2. Participants will share ideas and concerns about the use of interaction analysis concepts in their local setting.
3. Participants will be able to list several potential areas of misuse to be avoided in the dissemination of information to other professionals.

PROCEDURES

Each instructor must plan Activity 18 himself, for only he can adequately read the needs and interests of the participants.

APPENDIX A

TALLY SHEET

Observer: ______________________________ **Date:** ________________________

Summary

Categories

	1	2	3	4	5	6	7	8	9	10	
Totals											

APPENDIX A

WORKING MATRIX

1	2	3	4	5	6	7	8	9	10
1									
2	2								
3		3							
4			4						
5				5					
6					6				
7						7			
8							8		
9								9	
10									10

APPENDIX A

FINISHED MATRIX

CLASS CODE NO____________________OBSERVER______________ DATE___________

CATEGORY	1	2	3	4	5	6	7	8	9	10	TOTAL Tallies
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
TOTAL TALLIES											
INCIDENTS											
Percent of Total											
	Teacher Total:							Student Total		Silence	

APPENDIX B

CONTENT ANALYSIS

Most people believe the identification of good teaching is a simple matter. What community is not prepared to judge the quality of it's teaching staff? What student does not have convictions regarding the competence of his teachers? What school board member hesitates to pontificate on the nature of effective instruction? The number of self-styled experts, both military and civilian, in the analysis and appraisal of teaching has become legion.

For those charged with the responsibility of appraising the teaching act, however, the task is not so simple. School supervisors, not always positive which teacher is a good teacher, are keenly aware of the complexities involved. In reality, the supervisor is unique who does not occasionally have misgivings as to the worth of his judgment.

Nevertheless, judge he must, for this is his job. Of necessity, each supervisor has developed an image of a good teacher, as well as the clues useful in identifying this image. His concept of teaching and the observable characteristics which predict teaching success often make up his professional stock in trade.

What, then, are the sources of this image? Frequently, one's concept of "good teacher" is purely personal. It derives largely from experience but is influenced, as well, by other factors.

Cultural background contributes markedly to individual concepts of what constitutes effective teaching. Personal values are rooted in culture and so affect judgments on teaching performance. If you disagree, ask a European to observe a class with you and compare your observation notes.

Content Analysis

Supervisors are also inclined to rate teachers in the light of what is currently significant. If committee reporting is the order of the day, the teacher who uses it shines in its "halo" effect. The teacher who refers glibly to programed learning or who uses a myriad of electronic or mechanical aids may be in line for a high rating this year. In the span of the teacher's career, he studies with diligence the many "hobby horses" of his appraisers.

In addition to developing his own image of the effective teacher, the supervisor also tends to evolve his own unique predictors of teaching success. No doubt evaluators search for those characteristics commonly held to be the indispensable antecedents of effective instruction. It is the rare supervisor, however, who does not consider certain of these to be more important than others. Some emphasize quality of preparation, others, the method of instruction, and still others the teacher's relationships with students. The supervisor's predictors of effective teaching determine his focus and scope of observation. As a means toward objectivity, he develops some type of procedure for observation, rather than depend upon image or opinion.

One instrument, one checklist or one system is not sufficient to encompass all the varied types of teaching acts. Consequently, a number of different instruments focusing on different aspects of teaching should be in the supervisor's repertoire of tools. One aspect of the teaching act where systematic observation procedures are less available relates to the quality of content. To meet this need, a thirteen point category system (Table I) has been developed. A supervisor may use it to gather data about the quality and quantity of subject matter presented.

TABLE I

CONTENT ANALYSIS

Cognitive Task I	1.	Seeks Information	Specific information sought with no demand for any action other than presentation
	2.	Gives Information	Specific facts given as one word answers, dates, unexplained data, lists, etc.
	3.	Seeks Labels and Groups	Naming, classifying, categorizing and grouping of information
Cognitive Task II	4.	Gives Labels and Groups	Specific facts classified, categorized or grouped
	5.	Seeks Interrelationships	Requests for responses which explain or organize data already known
	6.	Gives Interrelationships	Explanations or organization of information already presented
	7.	Seeks Inferences and Generalizations	Asks for comparisons, contrast, consequences, etc. which demand inclusion of information not already stated
Cognitive Task III	8.	Gives Inferences and Generalizations	Provides (specifically or through implications) comparisons, contrasts, consequences, principles, generalizations, etc.
	9.	Seeks Predictions and Hypotheses	Requests to apply known information to situations in order to predict events, outcomes, etc.
	10.	Gives Predictions and Hypotheses	Use of information and deductions to predict unknown facts, events, actions, etc.
Miscellaneous	11.	Procedural Remarks	Those statements made in class which intended as agreement, disapproval, management, reiteration, feeling, encouragement, etc.
	12.	Focus	Those statements made to keep students working toward the proposed objectives.
	13.	Nonverbal	All classroom activity which is nonverbal or does not contribute to the lesson (confusion or out-of-focus remarks)

Content Analysis

Several researchers in education (Marie Hughes, Gallagher and Aeschner, Hilda Taba) have developed systems for gathering data about the quality of classroom content. These techniques, however, are not adaptable for inclass supervision followed immediately by conferences. The category system delineated in Table I has been developed principally around the work of Aeschner, Gallagher and Taba.

People familiar with these systems will notice:

Categories 1-4 represent both Cognitive Task I and
Cognitive-Memory

Categories 5-8 approximate Cognitive Task II,
Convergent Thinking (5-6) and Evaluative Thinking (7-8)

Categories 9-10 represent both Cognitive Task III and
Divergent Thinking

Content Analysis does not provide as thorough an examination as available through the use of the other systems as they were originally designed. This system, however, does provide enough information to enable the supervisor to be better prepared in conducting a supervisory conference. Research proposals currently under examination by several funding agencies from various Oregon institutions of higher education will provide meaningful settings for the use of this system. At this time it is being used by supervisors in several Oregon communities.

In order to use the system effectively, the supervisor should spend time reading materials prepared by Bloom, Guilford, Flanders, Amidon, Aeschner,and Gallagher, and Taba. He must also become thoroughly familiar with the categories in Table I. Content analysis is used by the supervisor by tabulating a category number at least every three seconds during an

TABLE II

CONTENT ANALYSIS WORKSHEET

T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S
12			2		2	1		12			2		8		2		2	7			8	1			
12			1		6		2	12			8		8	7			2		2		8	1			
12			2	1		1		12			8		8		2		2		2	2			2		
12			2		2		6	7		1		12		4			2		2	7		5			
12			13	1		3		1			2	12			1		2	2			8	5			
1			2		2		4		8		2	12			2		2		8		8	5			
	2	1		11			4	1		1		3			8		2		8		11		6		
	2		2		2		4		8	1			2		8		2	11		11			6		
	3		2	1		3			8		2		2		8		8	11			11	1			
	2	12			2	3			8	1		1			8		8	11		2			2		
	2	12			2	3			8	5			8		8		8		8	2		8			
	2	12		11		3		1			2	1			8		8		8	7		8			
	2	12			6		4		2	7			2	11		1			8	7			11		
	2	1			2		4	1			2	1			8		2		8		8	11			
1			2	1		1		1		1			2		8		2	5		1		12			
1		1		1			4		8		2	1			8		2	5			2	12			
	4		2	1			4	1			2		8		2	7		5			2	12			
1		1			2		4		6		2	1			2	7		5		1		12			

observation which should last a minimum of twenty minutes. The number tallied is a symbol representing one of the categories and hence describes the activity observed during the time interval. Tallies are recorded in two vertical columns, one column for teacher involvement and one for student involvement. Table II illustrates a content analysis worksheet for tabulating an observation.

When the recording is completed, the "teacher" and "student" columns are totaled, precentages are calculated, and summarized into Table III and IV.

An examination of these tables gives some idea of the information available.

Table III

Content Analysis Totals

TEACHER TALK--43.5 Percent

Category	1	2	3	4	5	6	7	8	9	10	11	12	13
Tallies	39	4	6	-	9	-	7	-	-	-	8	17	-
Percent of Total	19.2	1.9	3.0	-	4.8	-	3.5	-	-	-	4.8	8.3	-
	24.1				8.3						4.8	8.3	
	Total TG--1.9 Percent								Total TS--29.5 Percent				

Table IV

Content Analysis Totals

STUDENT TALK--56 Percent

Category	1	2	3	4	5	6	7	8	9	10	11	12	13
Tallies	1	62	-	10	8	8	3	34	-	-	3	-	1
Percent of Total	.5	28	-	5	-	4	-	17	-	-	1.5	-	.5
	33.5				21				1.5				.5
	Total SS--5 Percent								Total SG--54.5 Percent				

Content Analysis

For further analysis, the supervisor returns to an examination of the raw data. He seeks to identify the two or three categories that usually preceded either teacher or student talk. He thus notes these tallies immediately preceding the shift of tallies from one column to the other. The ability to identify the predominant categories improves with usage. In the illustrated case, the supervisor would select teacher category 1, student category 2 and student category 8. Taking each selection separately, the supervisor would tally all categories in the other column immediately following it. Data received in this manner is presented in Table V.

TABLE V

Classroom Interaction

Teacher Category

1

Student Response

Category	T	2	4	6	8
Tallies	32	24	2	1	5

Student Category

2

Teacher Response

Category	T	1	2	5	7	11	12
Tallies	26	17	1	1	3	3	1

Student Category

8

Teacher Response

Category	T	1	6	11	12
Tallies	11	7	1	2	1

Content Analysis

An examination of Tables II, III, IV, and V gives the supervisor the following information for use in a supervisory conference.

Information from Table II

1. Only one teacher category 3 was not followed by a student category 4
2. Only one teacher category 5 was not followed by a student category 6
3. Three of four teacher category 7's were followed with student category 2

Information from Table III and IV

1. The teacher talked 43.5 percent of the time. Most of this was spent "seeking."
2. The students talked 56 percent of the time. Virtually all of it was in providing answers.
3. 57.6 percent of the time was spent in what Hilda Taba calls Cognitive Task I.
    a. 49.6 percent seeking or giving information

4. 29.3 percent of the time was spent in what Hilda Taba calls Cognitive Task II.
    a. TS--8.3   SG--21

5. No time was spent on predicting or hypothesizing.
6. The teacher spent 8.3 percent of time establishing or reestablishing focus.

Information from Table V

1. Students responded 32 times following teacher category 1.
    a. 24 times by giving information
    b. 2 times by giving labels and groups
    c. 1 time by giving interrelationships
    d. 5 times by giving inferences and generalizations

2. The teacher talked 26 times following student category 2.
    a. 17 times by seeking more information
    b. 1 time by giving information
    c. 1 time by seeking interrelationships
    d. 3 times by seeking inferences
    e. 3 times by making procedural remarks
    f. 1 time he focused discussion

3. The teacher talked 11 times following a student category 8.
    a. 7 times he sought information
    b. 1 time he sought interrelationships
    c. 2 times he repeated
    d. 1 time he refocused